<110>   Nagaike, Kazuhiro
         Mori, Yasuko
         Gomi, Yasuyuki
         Takahashi, Michiaki
         Kouichi, Yamanishi

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<220>
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acacgtttta agtactgttg gaactccctc accaaccgca aycgcaatcc tttgaaggct   180

gcgagagcgt ttggaaaact cgggtacgtc taaattcacc ccagygcg atg gat acg   237
                                                        Met Asp Thr
                                                         1

ccg ccg atg cag cgc tct aca ccc caa cgc gcg ggg tcg cct gat act   285
Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser Pro Asp Thr
  5   10   15

2

```
ttg gag tta atg gac ctg ttg gac gcg gcc gcc gcg gcc gcc gaa cac      333
Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala Ala Glu His
20              25                  30                  35

agg gcc cgg gtg gtc acc tcg agt cag cct gac gat cta cta ttt gga      381
Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu Leu Phe Gly
                40                  45                  50

gag aac ggg gtc atg gtg gga cgg gaa cat gag atc gtt tca att ccc      429
Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val Ser Ile Pro
                55                  60                  65

tcc gta tcg gga ctt caa cca gaa ccc aga acg gaa gat gtt ggc gaa      477
Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp Val Gly Glu
            70                  75                  80

gag cta aca caa gac gac tac gta tgc gag gac ggt cag gat cta ayg      525
Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln Asp Leu Xaa
        85                  90                  95

ggc tcg cct gta atc ccg ctg gcc gag gtc ttc cac acc cga ttc tcg      573
Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr Arg Phe Ser
100                 105                 110                 115

gag gcc ggc gcg cga gaa cca aca gga gcc gat cgc tcc ctc gag aca      621
Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser Leu Glu Thr
                120                 125                 130

gtc tct ctc gga acg aag ctt gct agg tct cca aaa cca ccg atg aac      669
Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro Pro Met Asn
                135                 140                 145

gat ggg gaa acg ggc aga ggt acg acc cct ccg ttc ccg cag gcc ttc      717
Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro Gln Ala Phe
        150                 155                 160

tcc cct gta tcc ccc gcg tct cct gtt gga gac gcc gcc ggg aac gat      765
Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala Gly Asn Asp
        165                 170                 175

caa cgg gaa gac cag cgg tct ata ccc cga caa acg acg aga gga aat      813
Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr Arg Gly Asn
180                 185                 190                 195

tca cca ggt ttg ccg tcg gtg gtc cat cga gac aga caa act cag tcc      861
Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln Thr Gln Ser
                200                 205                 210

atc tcg ggt aaa aag ccg ggc gat gag caa gcg ggt cat gcg cat gca      909
Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His Ala His Ala
            215                 220                 225

tcg ggg gac gga gta gtt ctc cag aaa act caa cgg ccc gct cag gga      957
Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro Ala Gln Gly
            230                 235                 240

aag agc ccg aag aaa aag act ttg aag gtt aag gtc cca ctc ccg gcg     1005
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Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro Leu Pro Ala
    245             250             255

cgg aaa ccc ggt gga cct gta ccc ggc ccg gtt gag caa ttg tac cac    1053
Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln Leu Tyr His
260             265             270             275

gtc ctt tcg gac agc gtt ccc gct aag ggg gca aag gcg gac ctg ccg    1101
Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala Asp Leu Pro
                280             285             290

ttt gag acc gat gat acc cgc cca agg aaa cat gat gcc cgg ggt ata    1149
Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala Arg Gly Ile
                295             300             305

aca cct cgc gtc cct gga cgt tcg tcg ggg ggc aaa cct aga gcg ttt    1197
Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro Arg Ala Phe
            310             315             320

ttg gcc ctg ccg gga aga tcc cac gca cca gac ccg att gag gat gac    1245
Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile Glu Asp Asp
        325             330             335

agc ccg gtg gag aaa aag cca aag agt cgt gag ttt gtt tcg tct tca    1293
Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val Ser Ser Ser
340             345             350             355

tcc tct tcc tcg tcg tgg gga tcg tca tcg gag gat gaa gac gat gaa    1341
Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu Asp Asp Glu
            360             365             370

ccc cgg cgc gtt tcg gtg gga agt gaa act aca ggc agc agg tcc gga    1389
Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser Arg Ser Gly
            375             380             385

cgc gaa cac gcc cct tcc ccg tca aat tcg gat gat tcg gac tca aat    1437
Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser Asp Ser Asn
        390             395             400

gat ggt ggg tcg acg aaa caa aat atc caa ccg gga tat cga tcc atc    1485
Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr Arg Ser Ile
        405             410             415

agc ggt ccc gat ccg agg att cgt aag acc aaa cgt ctt gcg ggg gaa    1533
Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu Ala Gly Glu
420             425             430             435

ccg ggg cgc cag aga cag aaa tca ttt tcc ctg ccg cga tcc aga acc    1581
Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg Ser Arg Thr
            440             445             450

ccg ata att ccc ccg gtg tcg ggg ccg ctc atg atg ccc gac gga agc    1629
Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro Asp Gly Ser
            455             460             465

cct tgg ccc gga tcg gcg ccc ctc cca tcc aac agg gtg cgg ttt gga    1677
Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val Arg Phe Gly
```

4

```
ccg tcc ggg gag acc aga gag ggt cac tgg gag gat gag gct gtg aga        1725
Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu Ala Val Arg
    485                     490                     495

gcg gcg cgg gct cgt tac gag gcc tca act gaa ccc gyg ccg ctt tac        1773
Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Xaa Pro Leu Tyr
500                     505                     510                     515

gtg ccg gag ttg gga gat ccg gct aga cag tac cgc gcg ctg att aac        1821
Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala Leu Ile Asn
                    520                     525                     530

ctg atc tac tgt cca gac aga gac cct ata gca tgg ctc cag aac ccc        1869
Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu Gln Asn Pro
                535                     540                     545

aag ctg acc ggt gtc aac tcg gcc ctg aac cag ttc tac caa aag ctg        1917
Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr Gln Lys Leu
                550                     555                     560

ttg cca ccg gga cgg gcg ggt acc gcc gtt acg ggg agc gta gcg tct        1965
Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser Val Ala Ser
                565                     570                     575

ccc gtt ccg cat gta ggc gaa gcc atg gcc acg ggg gag gcc ctc tgg        2013
Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu Ala Leu Trp
580                     585                     590                     595

gct ctc ccc cac gcg gcc gcg gcc gtg gct atg agc cgt cgg tac gac        2061
Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg Arg Tyr Asp
                    600                     605                     610

cgg gcc caa aaa cac ttt atc cta cag agt ctc cgc aga gcc ttt gcc        2109
Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg Ala Phe Ala
                    615                     620                     625

ggc atg gca tac ccc gag gca acg ggc tcc agt ccg gcg gcg cgg atc        2157
Gly Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala Ala Arg Ile
            630                     635                     640

tcc cgc ggt cac cct tct cca aca acc ccg gcc aca cag act ccc gac        2205
Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln Thr Pro Asp
    645                     650                     655

cct cag ccg tcg gcc gcc gcg cgc tct ctt tct gtg tgt cca ccg gat        2253
Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys Pro Pro Asp
660                     665                     670                     675

gat cgt tta cga act ccg cgc aag cgc aag tcc cag cca gtc gag agc        2301
Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro Val Glu Ser
                    680                     685                     690

aga agc ctc ctc gac aag att agg gag aca ccc gtc gcg gac gcc cgg        2349
Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala Asp Ala Arg
                    695                     700                     705
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5

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gtt gca gac gat cat gtg gtt tcc aag gcc aag agg cgg gta tcc gag          2397
Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg Val Ser Glu
        710                 715                 720

ccc gtg acc atc acc tcg ggc cct gtg gtg gat ccc ccc gcc gta ata          2445
Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro Ala Val Ile
        725                 730                 735

acg atg cca ctt gac gga ccg gcc cca aac ggg gga ttt cgg cgt att          2493
Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe Arg Arg Ile
740                 745                 750                 755

ccc cgg ggg gcc ctg cat acc ccg gtc ccg tcg gac cag gct cgc aag          2541
Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln Ala Arg Lys
                760                 765                 770

gcg tac tgt acc ccc gaa acc atc gcc cgt ctg gtc gac gac cca ttg          2589
Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp Asp Pro Leu
                775                 780                 785

ttt ccc acg gcc tgg cgc cct gcg cta agc ttt gat ccc ggc gcc ttg          2637
Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro Gly Ala Leu
        790                 795                 800

gcg gaa atc gcc gct cgg cgt ccg ggc gga gga gac cga cgg ttt ggt          2685
Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg Arg Phe Gly
        805                 810                 815

cca ccc agc gga gtg gag gcg ctg cga cgg agg tgc gcc tgg atg cgg          2733
Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala Trp Met Arg
820                 825                 830                 835

cag atc cca gac ccg gag gat gtg agg ctt ctg atc atc tac gat ccg          2781
Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile Tyr Asp Pro
                840                 845                 850

ttg ccc gga gag gac atc aac ggc ccc ctc gag agc acc ctc gcg aca          2829
Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr Leu Ala Thr
                855                 860                 865

gat ccg gga ccg tca tgg agt cca tcc cga ggg gga ctg tct gtg gtc          2877
Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu Ser Val Val
                870                 875                 880

ctg gca gcc ctg agt aac cgg ttg tgc ctg ccg agc act cat gcc tgg          2925
Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr His Ala Trp
        885                 890                 895

gcc ggg aac tgg acc ggc ccg ccg gac gtg tcc gct ttg aac gcc cgg          2973
Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu Asn Ala Arg
900                 905                 910                 915

ggc gtt tta tta ctg tcg acc cga gac ctg gcc ttt gcc ggg gcc gtc          3021
Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala Gly Ala Val
                920                 925                 930
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6

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gag tat cta ggc tcg cgg ttg gcc tct gcc cgg cgc cgg ttg ctg gtg      3069
Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg Leu Leu Val
            935             940             945

ttg gac gcg gtg gcc ctc gag agg tgg ccc ggg gat gga ccc gct ttg      3117
Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Gly Asp Gly Pro Ala Leu
        950             955             960

tct cag tat cac gtg tac gtc cgg gcc ccg gcg cga ccg gac gcc cag      3165
Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro Asp Ala Gln
    965             970             975

gcc gtc gtc cga tgg cca gac tcg gcg gtc aca gaa gga ctc gcc cgg      3213
Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly Leu Ala Arg
980             985             990             995

gcc gtg ttt gca tcg  tcg cgc acc ttt ggg  cca gcg agt ttt gct       3258
Ala Val Phe Ala Ser  Ser Arg Thr Phe Gly  Pro Ala Ser Phe Ala
            1000            1005            1010

cgt atc gag act gcg  ttt gcc aac ctg tac  ccg ggc gaa caa ccc       3303
Arg Ile Glu Thr Ala  Phe Ala Asn Leu Tyr  Pro Gly Glu Gln Pro
            1015            1020            1025

ctg tgt ttg tgc cgc  ggt ggg aac gtc gca  tac acc gtg tgt acc       3348
Leu Cys Leu Cys Arg  Gly Gly Asn Val Ala  Tyr Thr Val Cys Thr
            1030            1035            1040

cgc gcg ggc ccc aag  acc cgc gtc ccc ctg  tcg ccc cgt gaa tac       3393
Arg Ala Gly Pro Lys  Thr Arg Val Pro Leu  Ser Pro Arg Glu Tyr
            1045            1050            1055

cgg cag tac gtg ctg  ccg ggt ttt gac ggt  tgc aag gac ctc gcg       3438
Arg Gln Tyr Val Leu  Pro Gly Phe Asp Gly  Cys Lys Asp Leu Ala
            1060            1065            1070

cga cag tct cgg ggt  ctg ggg ctc ggg gca  gcc gac ttt gtg gac       3483
Arg Gln Ser Arg Gly  Leu Gly Leu Gly Ala  Ala Asp Phe Val Asp
            1075            1080            1085

gag gcg gca cat agc  cac cgc gca gca aac  cga tgg ggc ctg ggt       3528
Glu Ala Ala His Ser  His Arg Ala Ala Asn  Arg Trp Gly Leu Gly
            1090            1095            1100

gcc gcg ctt cga ccc  gtc ttc ctt ccc gag  gga cgg aga ccg ggg       3573
Ala Ala Leu Arg Pro  Val Phe Leu Pro Glu  Gly Arg Arg Pro Gly
            1105            1110            1115

gcc gcc ggg ccg gag  gcc ggc gac gta ccc  acc tgg gcg agg gtg       3618
Ala Ala Gly Pro Glu  Ala Gly Asp Val Pro  Thr Trp Ala Arg Val
            1120            1125            1130

ttt tgc cgc cac gcc  ctg ctg gaa ccc gac  cct gcc gcg gaa cca       3663
Phe Cys Arg His Ala  Leu Leu Glu Pro Asp  Pro Ala Ala Glu Pro
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ctc gtg ctt cca ccc  gtg gcc ggt cgg tcg  gtg gcg ctg tat gcg       3708
```

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```
Leu Val Leu Pro Pro  Val Ala Gly Arg Ser  Val Ala Leu Tyr Ala
                1150                    1155                    1160

tcg gcg gac gag gct  cgg aat gcc ctc ccc  ccg att ccc aga gta         3753
Ser Ala Asp Glu Ala  Arg Asn Ala Leu Pro  Pro Ile Pro Arg Val
                1165                    1170                    1175

atg tgg ccg ccc ggt  ttt ggg gcc gcg gag  acg gtg ttg gag ggg         3798
Met Trp Pro Pro Gly  Phe Gly Ala Ala Glu  Thr Val Leu Glu Gly
                1180                    1185                    1190

agc gac gga aca cgg  ttc gcg ttc gga cac  cac ggg ggc tcg gaa         3843
Ser Asp Gly Thr Arg  Phe Ala Phe Gly His  His Gly Gly Ser Glu
                1195                    1200                    1205

cgg ccg gca gaa acc  cag gcg ggg cga cag  cgg cgc acc gca gac         3888
Arg Pro Ala Glu Thr  Gln Ala Gly Arg Gln  Arg Arg Thr Ala Asp
                1210                    1215                    1220

gac aga gaa cac gct  ttg gag ccg gac gat  tgg gag gtg ggg tgt         3933
Asp Arg Glu His Ala  Leu Glu Pro Asp Asp  Trp Glu Val Gly Cys
                1225                    1230                    1235

gaa gac gcg tgg gac  agc gag gag ggg ggc  ggg gac gac ggg gac         3978
Glu Asp Ala Trp Asp  Ser Glu Glu Gly Gly  Gly Asp Asp Gly Asp
                1240                    1245                    1250

gca ccg ggg tca tcc  ttt ggg gtg agc gtc  gtg tcg gtg gcc ccg         4023
Ala Pro Gly Ser Ser  Phe Gly Val Ser Val  Val Ser Val Ala Pro
                1255                    1260                    1265

ggt gtg ctg cga gac  cgc cgg gtg ggc tyg  cgc ccg gcg gtc aag         4068
Gly Val Leu Arg Asp  Arg Arg Val Gly Xaa  Arg Pro Ala Val Lys
                1270                    1275                    1280

gtg gag ctg ttg tcc  tcg tcc tcg tcc tcc  gag gac gag gac gat         4113
Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser  Glu Asp Glu Asp Asp
                1285                    1290                    1295

gtg tgg gga ggg cgc  ggg ggg agg agc ccc  ccg cag agt cgg ggg         4158
Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro  Pro Gln Ser Arg Gly
                1300                    1305                    1310

tgacggagtc ccctcctttt ctcgtgagcg ccacyggcgc gcggactgtt tgttgtttgt      4218

taataaaa                                                              4226


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8

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Met Asp Thr Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser
1               5                   10                  15


Pro Asp Thr Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala
            20                  25                  30


Ala Glu His Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu
        35                  40                  45


Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
    50                  55                  60


Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65                  70                  75                  80


Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85                  90                  95


Asp Leu Xaa Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
            100                 105                 110


Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
        115                 120                 125


Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
    130                 135                 140


Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145                 150                 155                 160


Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
                165                 170                 175
```

9

```
Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
        180                 185                 190

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
        195                 200                 205

Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
    210                 215                 220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro
225                 230                 235                 240

Ala Gln Gly Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro
            245                 250                 255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
            260                 265                 270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
        275                 280                 285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
        290                 295                 300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305                 310                 315                 320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
            325                 330                 335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
            340                 345                 350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
            355                 360                 365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
        370                 375                 380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser
385                 390                 395                 400
```

10

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
            405   410   415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
            420   425   430

Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
            435   440   445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
            450   455   460

Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465   470   475   480

Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
            485   490   495

Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Xaa
            500   505   510

Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
            515   520   525

Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
            530   535   540

Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545   550   555   560

Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
            565   570   575

Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
            580   585   590

Ala Leu Trp Ala Leu Pro His Ala Ala Ala Val Ala Met Ser Arg
            595   600   605

Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
            610   615   620

Ala Phe Ala Gly Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala

11

Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
            645   650   655

Thr Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660   665   670

Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
            675   680   685

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
            690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
            740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
            755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
            770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
            820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
            835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
            850   855   860

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```
Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865             870             875             880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr
            885             890             895

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
        900             905             910

Asn Ala Arg Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
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atg ggc tcc act ctg gtg cgt ccc agt tta aac gcc acc gcc gag gaa    1232
Met Gly Ser Thr Leu Val Arg Pro Ser Leu Asn Ala Thr Ala Glu Glu
        20                  25                  30
```

```
aat ccc gcg tca gaa acg cga tgt tta tta cga gtg ctt gcg ggg aga    1280
Asn Pro Ala Ser Glu Thr Arg Cys Leu Leu Arg Val Leu Ala Gly Arg
    35                  40                  45
```

```
act gta gac ctg cca ggc gga gga acg tta cac att acc tgt acc aaa    1328
Thr Val Asp Leu Pro Gly Gly Gly Thr Leu His Ile Thr Cys Thr Lys
50                  55                  60                  65
```

23

```
acc tat gta att att ggc aaa tat agc aaa ccc ggc gaa cgt ctt agc    1376
Thr Tyr Val Ile Ile Gly Lys Tyr Ser Lys Pro Gly Glu Arg Leu Ser
            70                  75                  80

ctt gcc cgt cta ata ggg cgt gca atg acg cct gga ggt gca agg aca    1424
Leu Ala Arg Leu Ile Gly Arg Ala Met Thr Pro Gly Gly Ala Arg Thr
            85                  90                  95

ttt att att ttg gcg atg aag gaa aag cga tcc aca acg ctt ggg tat    1472
Phe Ile Ile Leu Ala Met Lys Glu Lys Arg Ser Thr Thr Leu Gly Tyr
            100                 105                 110

gaa tgt ggt acg ggc ttg cat tta ctg gct cca tct atg ggt aca ttt    1520
Glu Cys Gly Thr Gly Leu His Leu Leu Ala Pro Ser Met Gly Thr Phe
            115                 120                 125

ctc cgc aca cac ggt tta agt aac aga gat ctc tgt tta tgg cgg ggt    1568
Leu Arg Thr His Gly Leu Ser Asn Arg Asp Leu Cys Leu Trp Arg Gly
130                 135                 140                 145

aat att tat gat atg cat atg caa cgt ctt atg ttt tgg gag aat atc    1616
Asn Ile Tyr Asp Met His Met Gln Arg Leu Met Phe Trp Glu Asn Ile
                150                 155                 160

gcg caa aat acc act gaa aca cct tgt ata acg tcg acg tta aca tgc    1664
Ala Gln Asn Thr Thr Glu Thr Pro Cys Ile Thr Ser Thr Leu Thr Cys
            165                 170                 175

aac ttg aca gaa gac tct ggt gaa gcc gca ctt acc acg tca gac cga    1712
Asn Leu Thr Glu Asp Ser Gly Glu Ala Ala Leu Thr Thr Ser Asp Arg
            180                 185                 190

ccc act ctc cca acc cta aca gcc caa gga aga cca aca gtt tcc aac    1760
Pro Thr Leu Pro Thr Leu Thr Ala Gln Gly Arg Pro Thr Val Ser Asn
            195                 200                 205

att cgt gga ata ttg aaa gga tcc ccc cgt caa cag ccg gtc tgt cac    1808
Ile Arg Gly Ile Leu Lys Gly Ser Pro Arg Gln Gln Pro Val Cys His
210                 215                 220                 225

cgg gtt aga ttt gcc gaa cct acg gag ggc gta ttg atg taa            1850
Arg Val Arg Phe Ala Glu Pro Thr Glu Gly Val Leu Met
                230                 235

tcactaaata aaatacacct tttttcgatt gtacgtattt ttatttaaat gtgtagttca    1910

tagtccgccg acagccgctc gggctttttcc cccacataca acatgatcgt atgcctcgga    1970

tgcaccggtc caacactccg ccgagaaggg ggatttacaa tgacagtgat acccaatagc    2030

cgccagatgt acacccagct gtccggactc cagcatcatc tgctgagttg cggcgctgaa    2090

gggtgcatcg cataggggtgt tataattagc catttccggt aacagtcgtt gggaatttag    2150

gaggctgcaa aacggctgta ggtcaacata cattggggat tcagatggtt tatctcgacg    2210

tccaagtcca atcaaaaaag cgtgtaaatc atcagcccgg ccgcatgttg ctcgaagagc    2270
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24

```
acataacctc ttaacaccgt acagagggga tggcgtcggt gcatgtgagt tggcagggca    2330

tgtccacgtt gtttccaacg ccagtggcgg tataacttgt gtaaacgacg ccaacgggtc    2390

aggtttaaga ttcactcgga tgggttgact gctttcggaa gctcccgttg tatccattaa    2450

ttaaacgttc ggtacacgtc tggtgtgtgt tttacccgaa tcagagacgg aattgcaaag    2510

atattggttt gaaagcaatg taatcccgcc catatatccc caacgtcgcc ttaaaaactc    2570

ccacaatatt acatttttat tagtctttta ttaatataga atcacataaa caattgataa    2630

aatcaagggg tggtgtataa tgattaaaaa tataaattga tatgtttttac aagcatgaaa    2690

taggtatttta ctattctaac aggtaaatat gcttaatgat taaaaataca aattagtatg    2750

ttttgacaag catgaaaaag gtattttta ttttagcagt taaaggtact acacttaaaa    2810

tatttaccgt atggacgggc gtcagaaaga tgcccggccc aagttgagag ggtacattca    2870

acacgaccac actcgcgttg gtgggtgatt agggcctcta aaacaccggc cagacatgac    2930

ccgggtgtat attcttgtaa cacttgaacg ttacaactga tatcatcata ttccacaaat    2990

ttagagccac ggacaactat attagcaatg cgggcaatca taacaaacat ataagtagta    3050

atacacgtga tatcactaaa acgttgctgg cgcaacagtt cggggagagt acgagacccc    3110

aaatcgttgt ccctgtttag aagaagacat cttacaaaag gccccagctt taactttaaa    3170

ttctccaaaa gtgacttcga ggttgcaaca atgggattat ttgtgtagat gggcaagttt    3230

tttgccgcta acattttaat ccacgttaac agttcatccg cagactccaa cgcttcaatc    3290

aaagattctc cacgtatgac tctctcacgc aacgcgcggg caatacgtga gtccatttta    3350

tatgactcaa aggtacgata aagttcatgt ccgtacaaca tcaactccgg ccaagatgtg    3410

ttttgtttta tccccggaaa acatccaccg gaagcccatg aatcaccctc ttgtattgtg    3470

gcatatcgga ctaccagttt ttcaattgtt tcatctaaat ggcgtaccga gtcaatggtc    3530

acgctggctc ccgcggtgga gacgacttca atagcacggc ccgtaattcg atcgaccggg    3590

atatcatact cttttcgaat acgctctcgg cgggcgtctc tcttggaaaa tcgcaacctg    3650

tacgattcgt catgtgtctg atcatttctt tctcccgtgg tcattgcagg aggcgttgta    3710

ggacgccgtc ttcgatttga cagggatcga tcacggtgtt ttcttgaact ttgagtgtta    3770

taagatctgg atgatcgtcg atgtccccgt tcgatgcgtg catatccagt ctccacgtct    3830

cttcctccat gatggtttga atcgggtaat acaacaacca aagttttcgg gcgattgtgg    3890

tggtagcttt cacgccttcc gtgccttcgt ttggaatacc gtggattata tgctgtatct    3950
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25

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gcagtacgct ccacatacac agttctagac gttgtggagt cctcgcctgg agtggagcca   4010

atagcttcat catttgccca atcggtgact tccaatgcaa agtcatccga aggttcgtct   4070

ggtagcaaat tcataaagtc ttcacaaata gtagacacgt ctgggtcggt tggaattgaa   4130

gcagaggcca tggctgcaaa atatctgaca attgcgtgtt tgcagttgcc tgtatcttcc   4190

gccaatgttg tagaatttat aggctcaccc aaccccgcaa tgggcgtgtt tagtcacatg   4250

attaatgctt ctgggagttt tcactttccc caaacaagct tacctgcacc ctttgttcgt   4310

aatgcataaa aataaccact gctatagcaa atatgacgat ataaaaacat tttatagcaa   4370

ggccggacat tactgtagcg caacatgttg tgcatatacc acgtattccc cccgtattga   4430

tatgatttaa atgattatcc ttggttggtt ttggtctaac ataagatata agctctacta   4490

tagcgagcgt gcatacaaca acccaggcca gaatccgaat gtatgtgggg tataataacg   4550

cgcatggtgt atatgcaacg ccaagcgtta aaagcacaat acatccagat gatatatgag   4610

cgataacctc caaaagcatc aataacgtaa cacctttatg catatataaa aaacttatag   4670

ggtcagcatt aaatacttta ctcataccat cccgtcgcat ggaaacatca cataacaacc   4730

ttgccaactt tgtatatggg taaccaagaa gaatgttcga ataacccgt gttacgtaat    4790

tcagtgaata tgatgtgggg gatattaact cacaggatga tcggaatggc ccaaacatac   4850

gacgtattcg tcgaaattgt aaatacatac catatacaaa ccatgcaaaa aaaatcattt   4910

ttagctgcac gcaccaaaaa taagcgtgac aattacgtgt tcccagaaca attcgaattt   4970

tgtcatgcaa aggtgtagaa atagcggttt ttaccatagt atctcctgat aatagatttt   5030

cccggcagct gtaatcgtat ccagataggc catccaaaaa cgttgagtgg tttacaaacg   5090

ttacatatat aagagagttg ttataagacc cccatacaac cggtccacca ttaatcaccg   5150

tggttgcata cacacactca tgttcaaact ttacacgagc ggtataccat agggtaaaaa   5210

cagcatgtcc gctaagtaga cacataatta taaaatgttc tgtcttgatt cctaaagcct   5270

gcatgacccg tggaagatgg caattcaagc acgatgtagt atcacacggt tggtgttaac   5330

tcgaagttaa atttggataa ttaggtactt ctagagtaaa gattgtatgc atgcgattgc   5390

tatcgcactt tgtagcaaaa cattgttgtg caagcgaaat acacaaacgg ttgtgatgat   5450

ccactcgcag agacacaaat gtccggggag ccgttcttcc tccgcgatgg ggatatcgaa   5510

gacaagtgaa cccttttgtt ccgcatatga gctgaaataa cacccagtcc cttttgatgg   5570

cgatacactt tgatgatgtt aaggtatatt cgcgatcacg cccggggaaa tgaacagcaa   5630

tatgctccac aatagattct aatattgtgc tgtcgacaaa ggcctccagt gtaaatgcgt   5690
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26

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ccagacaagt taccccgcgc tcttttagag cctttgttaa agatatttgc ggggagctaa    5750

atatttgttt attacgcgca accttacgtt caaaaaactc tgcgtattcc cccccaaggt    5810

tatgtaaaat aaattgcact ggaacattcg actgcggtct tgaatgaaaa tgaaagtttg    5870

ccgggtttct atgtgatgtc acaaacgcta atatatcaat acactgctca ggtacaacat    5930

aaaatgggag tagttgtcca accgccgtcc ctgtggttgt tactttggag aaaaaaggca    5990

gtcttaaact atgtccgtgg ctataaacac cagtatctat aaacgaaaag tcccgtaaat    6050

acggaccaat atattcaaca aattcccgtt ccagcaacac cgcttgctgt aatatttgtg    6110

caaacccctt taaagtggaa gaccccacta acgcataggg atttgggatt ggtacgcata    6170

ccctgaaacc tattttctct ttacagttac agggtagagt ttcatgcaag ttttcattgt    6230

ttgatacatc ggcgtgtgta tggacttcag acgttgtctg tgtatcaaaa aaccatacat    6290

cctctgtata attctcttct acacacgtgt ataattcgcc attttctatg taaaaatcga    6350

tgtcagaatg gctggttata tccaataaat tatcatcatc caacacctca acggtaggtt    6410

caggacatgc agttttataa aaataacatg ggtctttgtt agggtttacc acggcctttg    6470

gaaaaagtaa ttgcatggcc gttaaaatac catgacgaaa tgctcgcatg ccggcatgta    6530

aaatacccaa tgggatgggt tttcttatat gaaagtctac atcaagtatg aggtttgtga    6590

ttataagatt tgtattaaat agctcattcc tgtttatata aagctgatct ttgggtatgt    6650

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ctcgtagtga agcggcaaca aaattacatg gattaatttg tttaaggtcc tccgcaatta    6770

atcgagcctc gtgcggtaaa gtgtaacggt ttgttattga tgaccacgta tcattagcaa    6830

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catgtgtggc tatcccagtg gcagcagaga aaaacagtaa tagttttgta atccccgggc    7010

tcgtatcaaa accagtacga ccactttggt taggtgtatc gtttgcaaag ttggctgctc    7070

gtaacgcctc cgcggaaaca cccgaatcct caaaattaga caattcgtca aaaccgggtg    7130

gatttgaggg aatagtggag gaccatccat atggactaaa ttgttttTca atgttTTcca    7190

cacgacgagt tagcgttgta gctaggtcac atacgcctat aaacttgcta ggttttgcgg    7250

catacgtaag acttaaagta tatgtttTag taattgtata tttatgtcca atctcaggtc    7310

caagttcagt gacatcacaa attacgttct ttTTtatata gtcacgcatg ttgagacgag    7370
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27

aacgtacatg attaaaaaaa ttagcagtag ctcttttttcc caggttggat gattttaaga   7430

ggaccggttt attcacaaaa tctgagtatg taaccgcttg taggtggtct gcgatctgtt   7490

tccgattgaa acattcaaaa tgtgccagat aaatataatc aacaaattca cggtctggaa   7550

ctttaaggcc ttttctatcg ttggtaatat actccgatac tgcgtgtatt ccgttgtgt   7610

ctgtatgtat tcgctgtaaa atgtacgata gagcattttt ggctgtcaaa cctcgtgtat   7670

atgttgagga acaacaaac atggaaagtt tatcaaaga caacaagtcc gaaatattgt   7730

acccactaca attaggtaat gccgggactt ggtaagttaa aaacaaatct ttaattgcct   7790

gtaagtcata taaggggggtt tccaacgtat tgtaacttgt gtccgtttgt aacaagtaat   7850

agcgtgtagc caacactagc gttttttcag agggtccaaa tcgaacaata taccaaaacg   7910

gcgagcatcc ataccccag tagagtcgtc gatatgcagc caatacttga cgttcgtaat   7970

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ttaccatcag agtttgtata acttccgagt gaatgtcaaa cgtctccgat atacataggg   8150

tatcagatat tatatgcgga tttaggggtg ctccatacca taacgcctta tataaagctt   8210

taaaatcagt ttgggttttta aaacaacaaa aaaatatagg ccagacccgg gatcgtacat   8270

ctccagttga aaatccacca attaaataaa aaataacgtt gacgtccta ctacaaaata   8330

aatgcattat ttggtttttct tcatcgtttt cagttacttc acgtgggcgt ttagttggga   8390

ttacttgcgt gatctcttcc ctcccatttt tgacaaagac gtcatctaag tcgggagtcc   8450

aagtataact caccacatac agaggttctg tgcttatctg cccggtaagc aacaacagcg   8510

agtgggagat tgcacatccc tttgtggcaa ataataaccg aatcgtcggt ttggaggatt   8570

tatccatagt tcaatacgtt ggaaagccag tcaatc atg cag acg gtg tgt gcc   8624
                                        Met Gln Thr Val Cys Ala
                                        240

agc tta tgt gga tat gct cga ata cca act gaa gag cca tct tat gaa   8672
Ser Leu Cys Gly Tyr Ala Arg Ile Pro Thr Glu Glu Pro Ser Tyr Glu
245   250   255   260

gag gtg cgt gta aac acg cac ccc caa gga gcc gcc ctg ctc cgc ctc   8720
Glu Val Arg Val Asn Thr His Pro Gln Gly Ala Ala Leu Leu Arg Leu
            265   270   275

caa gag gct tta acc gct gtg aat gga tta ttg cct gca cct cta acg   8768
Gln Glu Ala Leu Thr Ala Val Asn Gly Leu Leu Pro Ala Pro Leu Thr
            280   285   290

tta gaa gac gta gtc gct tct gca gat aat acc cgt cgt ttg gtc cgc   8816

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Leu Glu Asp Val Val Ala Ser Ala Asp Asn Thr Arg Arg Leu Val Arg
    295                 300                 305

gcc cag gct ttg gcg cga act tac gct gca tgt tct cgt aac att gaa    8864
Ala Gln Ala Leu Ala Arg Thr Tyr Ala Ala Cys Ser Arg Asn Ile Glu
    310                 315                 320

tgt tta aaa cag cac cat ttt act gaa gat aac ccc ggt ctt aac gcc    8912
Cys Leu Lys Gln His His Phe Thr Glu Asp Asn Pro Gly Leu Asn Ala
325                 330                 335                 340

gtg gtc cgt tca cac atg gaa aac tca aaa cgg ctt gct gat atg tgt    8960
Val Val Arg Ser His Met Glu Asn Ser Lys Arg Leu Ala Asp Met Cys
                345                 350                 355

tta gct gca att acc cat ttg tat tta tcg gtt ggc gcg gtg gat gtt    9008
Leu Ala Ala Ile Thr His Leu Tyr Leu Ser Val Gly Ala Val Asp Val
                360                 365                 370

act acg gat gat att gtc gat caa acc ctg aga atg acc gct gaa agt    9056
Thr Thr Asp Asp Ile Val Asp Gln Thr Leu Arg Met Thr Ala Glu Ser
                375                 380                 385

gaa gtg gtc atg tct gat gtt gtt ctt ttg gag aaa act ctt ggg gtc    9104
Glu Val Val Met Ser Asp Val Val Leu Leu Glu Lys Thr Leu Gly Val
    390                 395                 400

gtt gct aaa cct cag gca tcg ttt gat gtt tcc cac aac cat gaa tta    9152
Val Ala Lys Pro Gln Ala Ser Phe Asp Val Ser His Asn His Glu Leu
405                 410                 415                 420

tct ata gct aaa ggg gaa aat gtg ggt tta aaa aca tca cct att aaa    9200
Ser Ile Ala Lys Gly Glu Asn Val Gly Leu Lys Thr Ser Pro Ile Lys
                425                 430                 435

tcg gag gcg aca caa tta tct gaa att aaa ccc cca ctt ata gaa gta    9248
Ser Glu Ala Thr Gln Leu Ser Glu Ile Lys Pro Pro Leu Ile Glu Val
                440                 445                 450

tcg gat aat aac aca tct aac cta aca aaa aaa acg tat ccg aca gaa    9296
Ser Asp Asn Asn Thr Ser Asn Leu Thr Lys Lys Thr Tyr Pro Thr Glu
                455                 460                 465

act ctt cag ccc gtg ttg acc cca aaa cag acg caa gat gta caa cgc    9344
Thr Leu Gln Pro Val Leu Thr Pro Lys Gln Thr Gln Asp Val Gln Arg
    470                 475                 480

aca acc ccc gcg atc aag aaa tcc cat gtt atg ctt gta taa    9386
Thr Thr Pro Ala Ile Lys Lys Ser His Val Met Leu Val
485                 490                 495

atattgaaat aaaaactaaa aacgtttctg gtgtatgttt ttattttgta tataaaatta    9446

aaacattgct ggctggcgtg gttattacat ttaatgtttt agtagaaaat cgacatcgtt    9506

tgtttcttta tcagttgaac caaatccacg cgttccccgt tcgctgggtg tggctattag    9566
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atctaacgtt ttagtaaaat accattgtac acccggtatg ccacatttac cgcggatagc    9626

ataaggaaat gcaatattac ttaaaacgtt gtgttttaag tgtatttggg tgttgtgatc    9686

tattaacagg acctgtgcaa gacgatctcc cgtttttata cgtatgtcat cacccgtgag    9746

attatatacg tagaatttac agtgttctcc tgcaggccat gccgttggac acacgataat    9806

gcctgatcgg cttttcgatg atcttccaaa aatataagcg tttatactcg gatgttgtaa    9866

gtcccagtct cttataatcg gtaagacaat ttttataaat tcattccttt ttaaatatag    9926

gttatatggt acacaaatat catatcccgc gtcttcttgg cgttttggat tgatgatatg    9986

tttgtaggtt aagggaacat cgatatggta ttctgcagaa tccctatgta aaggttgccc    10046

ctgctgtacc gtggaaatat cagcaaattc aggtataacg ggttttttcat aatttgacgg    10106

cgagtttgat aagggttgaa cttgtatcga tttaaaaatt ggatccagat gtttaagaac    10166

gttttttggg agaaggcgac tttgtcttaa ttttaccggg aacaagtaga ttgttaaatg    10226

tccgggtaaa ataacggtta ctcctggccg gtaatacaaa agggctgaaa ttactcctct    10286

gtaacccgca tcaataactc cgttggcgac aaaaaaattg tcttcatcag caagggcagt    10346

atctttgcat tgaattaaca acagtgcgta ttcattggga ggcgccgact taaccaacag    10406

ctccaactgc tgcatataaa aaccgccccg tgttacagat ttttcagatg gcagttcgag    10466

tttcttgtgg ttccggagta acaacggttg atgtcgactt actttatcgt ctaacacgca    10526

ttgcagcgta tctgcacatt caggttgaac ttctattaaa attgtatctt ttaaacaccg    10586

attcggaata gtttggctac aaaacatatc acctgtattt actgccgttt ccaag atg     10644
                                                                  Met


gga tca att acc gct tcg ttc ata tta ata acg atg caa att tta ttt    10692
Gly Ser Ile Thr Ala Ser Phe Ile Leu Ile Thr Met Gln Ile Leu Phe
    500             505                 510

ttt tgt gaa gac agc agt ggg gag cca aac ttt gca gaa cgg aat ttt    10740
Phe Cys Glu Asp Ser Ser Gly Glu Pro Asn Phe Ala Glu Arg Asn Phe
515             520                 525                 530

tgg cat gcc agc tgt tcg gct cgt gga gtt tat atc gac gga tca atg    10788
Trp His Ala Ser Cys Ser Ala Arg Gly Val Tyr Ile Asp Gly Ser Met
                535                 540                 545

atc acc acc ctt ttc ttc tac gca tcc ctt ttg ggg gtg tgt gta gcc    10836
Ile Thr Thr Leu Phe Phe Tyr Ala Ser Leu Leu Gly Val Cys Val Ala
                550                 555                 560

ctt att tcg tta gct tat cat gcg tgt ttc cgg tta ttt act cgt tct    10884
Leu Ile Ser Leu Ala Tyr His Ala Cys Phe Arg Leu Phe Thr Arg Ser
        565                 570                 575
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30

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gta tta cgc agc acg tgg taaacccgtt tgcctataaa aggggcaggc          10932
Val Leu Arg Ser Thr Trp
    580

gtgtataaga gggcccctgt ttaatacgcg gtctgccgtg tttggatatt tcacgaccct   10992

atcgtttatt tacgta atg gca tct tcc gac ggt gac aga ctt tgt cgc tct   11044
              Met Ala Ser Ser Asp Gly Asp Arg Leu Cys Arg Ser
                  585                590                595

aat gca gtg cgt cgt aaa aca acg cct agt tat tcc gga caa tat cga   11092
Asn Ala Val Arg Arg Lys Thr Thr Pro Ser Tyr Ser Gly Gln Tyr Arg
            600                605                610

acc gcg cgg cga agt gtg gtc gta gga ccc ccc gat gat tca gac gac   11140
Thr Ala Arg Arg Ser Val Val Val Gly Pro Pro Asp Asp Ser Asp Asp
            615                620                625

tcg ttg ggt tac att acc aca gtt ggg gcc gat tct cct tct cca gtg   11188
Ser Leu Gly Tyr Ile Thr Thr Val Gly Ala Asp Ser Pro Ser Pro Val
            630                635                640

tac gcg gat ctt tat ttt gaa cat aaa aat acg acc cct cgc gta cat   11236
Tyr Ala Asp Leu Tyr Phe Glu His Lys Asn Thr Thr Pro Arg Val His
645                650                655                660

caa cca aac gac tcc agc gga tcg gaa gat gac ttt gaa gac atc gat   11284
Gln Pro Asn Asp Ser Ser Gly Ser Glu Asp Asp Phe Glu Asp Ile Asp
                  665                670                675

gaa gta gtg gcc gcc ttt cgg gag gcc cgt ttg aga cat gaa ctg gtt   11332
Glu Val Val Ala Ala Phe Arg Glu Ala Arg Leu Arg His Glu Leu Val
            680                685                690

gaa gat gct gta tat gaa aac ccg cta agt gta gaa aaa cca tct aga   11380
Glu Asp Ala Val Tyr Glu Asn Pro Leu Ser Val Glu Lys Pro Ser Arg
            695                700                705

tct ttt act aaa aat gcg gcg gtt aaa cct aaa tta gag gat tca ccg   11428
Ser Phe Thr Lys Asn Ala Ala Val Lys Pro Lys Leu Glu Asp Ser Pro
    710                715                720

aag cga gct ccc ccg gga gca ggc gca att gcc agc ggg aga cca att   11476
Lys Arg Ala Pro Pro Gly Ala Gly Ala Ile Ala Ser Gly Arg Pro Ile
725                730                735                740

tcc ttc agc act gca cca aaa acc gca aca agc tcg tgg tgc ggt cct   11524
Ser Phe Ser Thr Ala Pro Lys Thr Ala Thr Ser Ser Trp Cys Gly Pro
                  745                750                755

acg cca tca tat aac aaa cgc gtc ttt tgt gaa gcg gtc cgg cgc gta   11572
Thr Pro Ser Tyr Asn Lys Arg Val Phe Cys Glu Ala Val Arg Arg Val
                  760                765                770

gcc gcc atg cag gca caa aag gct gcc gaa gcg gct tgg aat agt aat   11620
Ala Ala Met Gln Ala Gln Lys Ala Ala Glu Ala Ala Trp Asn Ser Asn
```

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ccc cca agg aat aac gcc gaa tta gac cgt ttg tta acc gga gcc gtt    11668
Pro Pro Arg Asn Asn Ala Glu Leu Asp Arg Leu Leu Thr Gly Ala Val
    790             795             800

att cgt att acg gtg cat gag ggt tta aat tta ata caa gcc gct aat    11716
Ile Arg Ile Thr Val His Glu Gly Leu Asn Leu Ile Gln Ala Ala Asn
805             810             815             820

gaa gca gac cta ggt gaa gga gca tcg gta tcc aaa cgt gga cat aat    11764
Glu Ala Asp Leu Gly Glu Gly Ala Ser Val Ser Lys Arg Gly His Asn
            825             830             835

cga aaa act gga gat tta cag ggg ggc atg ggt aat gaa cct atg tac    11812
Arg Lys Thr Gly Asp Leu Gln Gly Gly Met Gly Asn Glu Pro Met Tyr
        840             845             850

gca caa gtt cgt aag cca aaa agt cga acg gat aca caa acg act ggg    11860
Ala Gln Val Arg Lys Pro Lys Ser Arg Thr Asp Thr Gln Thr Thr Gly
        855             860             865

cgt ata act aat cga agt agg gcc cgt tct gca tca aga act gat acg    11908
Arg Ile Thr Asn Arg Ser Arg Ala Arg Ser Ala Ser Arg Thr Asp Thr
        870             875             880

cga aaa tag ggatataatt acgcagtaac ggtttacccg gtattatgta           11957
Arg Lys
885

taataaataa acgtataaaa gacagtcgtg gtttgtgttt attataaatg tgtattatat  12017

gtcacatatt ataaactgtt taaatagtac cacgtggtat tatgaacagt ttataatcag  12077

ttgctaccaa acaaacccca ttagacggcg ggttttgata aagggaatcg cttatttaaa  12137

ctaaagattt tactctataa gt atg gag tgt aat tta gga acc gaa cat cct  12189
               Met Glu Cys Asn Leu Gly Thr Glu His Pro
                        890             895

agt aca gat acg tgg aat cgt agt aaa acg gaa caa gcg gtt gtg gac    12237
Ser Thr Asp Thr Trp Asn Arg Ser Lys Thr Glu Gln Ala Val Val Asp
        900             905             910

gca ttt gat gaa tcg ttg ttt ggt gat gta gca tcg gat att gga ttt    12285
Ala Phe Asp Glu Ser Leu Phe Gly Asp Val Ala Ser Asp Ile Gly Phe
        915             920             925

gaa acg tcg tta tat tca cat gca gtt aaa act gct ccg tct ccg cct    12333
Glu Thr Ser Leu Tyr Ser His Ala Val Lys Thr Ala Pro Ser Pro Pro
        930             935             940

tgg gta gct agc cct aaa att tta tat caa cag tta ata cgg gat ctt    12381
Trp Val Ala Ser Pro Lys Ile Leu Tyr Gln Gln Leu Ile Arg Asp Leu
945             950             955             960

gat ttt tca gaa ggg ccg cgt tta cta tca tgt ctt gaa acc tgg aac    12429
Asp Phe Ser Glu Gly Pro Arg Leu Leu Ser Cys Leu Glu Thr Trp Asn
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Asp Phe Ser Glu Gly Pro Arg Leu Leu Ser Cys Leu Glu Thr Trp Asn
              965                     970                   975

gag gat tta ttc tca tgt ttt cct att aat gag gac cta tat tcc gat    12477
Glu Asp Leu Phe Ser Cys Phe Pro Ile Asn Glu Asp Leu Tyr Ser Asp
              980                     985                   990

atg atg gtt tta tcc ccg gat cca  gat gac gtt atc tca  acc gtt tca   12525
Met Met Val Leu Ser Pro Asp Pro  Asp Asp Val Ile Ser  Thr Val Ser
          995                  1000                 1005

acc aaa  gac cat gtt gaa atg  ttt aat tta aca acc  cgg ggt tcc      12570
Thr Lys  Asp His Val Glu Met  Phe Asn Leu Thr Thr  Arg Gly Ser
      1010                1015                1020

gtt cga  ttg cct agt cca cca  aag caa ccg acg ggg  ctt cca gct      12615
Val Arg  Leu Pro Ser Pro Pro  Lys Gln Pro Thr Gly  Leu Pro Ala
      1025                1030                1035

tac gtt  cag gag gtc cag gat  tcg ttt acc gta gaa  cta cgc gcc      12660
Tyr Val  Gln Glu Val Gln Asp  Ser Phe Thr Val Glu  Leu Arg Ala
      1040                1045                1050

cgg gaa  gaa gca tac aca aaa  cta cta gtt act tat  tgt aaa tcg      12705
Arg Glu  Glu Ala Tyr Thr Lys  Leu Leu Val Thr Tyr  Cys Lys Ser
      1055                1060                1065

att ata  cgt tat ctc caa gga  acg gcg aaa agg acg  aca ata ggt      12750
Ile Ile  Arg Tyr Leu Gln Gly  Thr Ala Lys Arg Thr  Thr Ile Gly
      1070                1075                1080

ctt aat  ata caa aac cct gac  cag aaa gct tac acg  caa ctc agg      12795
Leu Asn  Ile Gln Asn Pro Asp  Gln Lys Ala Tyr Thr  Gln Leu Arg
      1085                1090                1095

caa agt  att cta ctt aga tat  tat cgt gag gtg gca  agt ttg gcg      12840
Gln Ser  Ile Leu Leu Arg Tyr  Tyr Arg Glu Val Ala  Ser Leu Ala
      1100                1105                1110

cgt ctt  ctg tac cta cat tta  tat tta acc gta acg  cgt gaa ttt      12885
Arg Leu  Leu Tyr Leu His Leu  Tyr Leu Thr Val Thr  Arg Glu Phe
      1115                1120                1125

tcc tgg  cgt ttg tac gcc agt  caa tct gca cac ccg  gac gtg ttt      12930
Ser Trp  Arg Leu Tyr Ala Ser  Gln Ser Ala His Pro  Asp Val Phe
      1130                1135                1140

gcg gct  tta aaa ttc acc tgg  acc gaa cgt cga cag  ttc acg tgt      12975
Ala Ala  Leu Lys Phe Thr Trp  Thr Glu Arg Arg Gln  Phe Thr Cys
      1145                1150                1155

gcg ttt  cat cct gta tta tgc  aac cac ggc att gtg  tta tta gaa      13020
Ala Phe  His Pro Val Leu Cys  Asn His Gly Ile Val  Leu Leu Glu
      1160                1165                1170

ggg aaa  cca cta aca gcg tct  gcc ttg agg gaa ata  aat tac cgc      13065
Gly Lys  Pro Leu Thr Ala Ser  Ala Leu Arg Glu Ile  Asn Tyr Arg
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cgc cga  gaa ctg gga ctg cct  cta gtt aga tgt ggt  ctt gtt gaa    13110
Arg Arg  Glu Leu Gly Leu Pro  Leu Val Arg Cys Gly  Leu Val Glu
    1190             1195             1200

gaa aac  aaa tct ccg ttg gtt  caa caa ccc tca ttt  tcg gtt cat    13155
Glu Asn  Lys Ser Pro Leu Val  Gln Gln Pro Ser Phe  Ser Val His
    1205             1210             1215

tta cca  cgg tcg gtg ggt ttt  ctt acc cac cac att  aag cgt aag    13200
Leu Pro  Arg Ser Val Gly Phe  Leu Thr His His Ile  Lys Arg Lys
    1220             1225             1230

tta gac  gca tat gcg gtc aaa  cat cct caa gaa ccg  aga cat gta    13245
Leu Asp  Ala Tyr Ala Val Lys  His Pro Gln Glu Pro  Arg His Val
    1235             1240             1245

cga gcg  gat cat cct tac gca  aaa gtt gtt gaa aat  aga aac tac    13290
Arg Ala  Asp His Pro Tyr Ala  Lys Val Val Glu Asn  Arg Asn Tyr
    1250             1255             1260

ggt agt  agc atc gaa gct atg  att tta gca cct ccg  tcc cca tcc    13335
Gly Ser  Ser Ile Glu Ala Met  Ile Leu Ala Pro Pro  Ser Pro Ser
    1265             1270             1275

gag atc  ctg ccg ggg gac cca  cca cgc cca ccc acg  tgt ggg ttt    13380
Glu Ile  Leu Pro Gly Asp Pro  Pro Arg Pro Pro Thr  Cys Gly Phe
    1280             1285             1290

tta acg  cgt taa acgtcattgg ggtagagggt gtaaataaat tacgaaaacg      13432
Leu Thr  Arg
    1295

tgcatgcgtt ttttattttt acaatgcgcc gtatatggta tgtctgtcat gtgctctaaa 13492

gtcccatata taaaagaagc cccaacgagt gtatgcgtat tgcgtaccgc gaccctggga 13552

tgttttacag gcgcgtttgt ttgtctcggt tataagt atg cag tcg ggt  cat tat 13607
                                        Met Gln Ser Gly  His Tyr
                                                 1300

aac cgg agg  caa tcc cgc cga cag  cgg ata tcg tct aat  acc aca    13652
Asn Arg Arg  Gln Ser Arg Arg Gln  Arg Ile Ser Ser Asn  Thr Thr
        1305             1310             1315

gac tcc ccc  cgt cac aca cac gga  aca cgt tat cgg tca  acc aat    13697
Asp Ser Pro  Arg His Thr His Gly  Thr Arg Tyr Arg Ser  Thr Asn
        1320             1325             1330

tgg tat aca  cac cca ccc cag ata  ttg tcc aat tca gaa  aca tta    13742
Trp Tyr Thr  His Pro Pro Gln Ile  Leu Ser Asn Ser Glu  Thr Leu
        1335             1340             1345

gtt gcg gtt  caa gaa cta ctg aac  tcc gag atg gat cag  gac agc    13787
Val Ala Val  Gln Glu Leu Leu Asn  Ser Glu Met Asp Gln  Asp Ser
        1350             1355             1360
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agt tct gac  gca tcg gat gat ttt  ccg gga tac gcc tta  cat cat      13832
Ser Ser Asp  Ala Ser Asp Asp Phe  Pro Gly Tyr Ala Leu  His His
        1365              1370              1375

tct aca tat  aat gga tcc gaa caa  aat aca tca act tcc  aga cat      13877
Ser Thr Tyr  Asn Gly Ser Glu Gln  Asn Thr Ser Thr Ser  Arg His
        1380              1385              1390

gaa aat cgc  ata ttt aaa tta acg  gag agg gaa gct aat  gag gaa      13922
Glu Asn Arg  Ile Phe Lys Leu Thr  Glu Arg Glu Ala Asn  Glu Glu
        1395              1400              1405

atc aac atc  aat acg gac gcg atc  gac gac gag gga gag  gcg gag      13967
Ile Asn Ile  Asn Thr Asp Ala Ile  Asp Asp Glu Gly Glu  Ala Glu
        1410              1415              1420

gag gga gag  gcg gag gag gac gcg  atc gac gac gag gga  gag gcg      14012
Glu Gly Glu  Ala Glu Glu Asp Ala  Ile Asp Asp Glu Gly  Glu Ala
        1425              1430              1435

gag gag gga  gag gcg gag gag gac  gcg att gac gac gag  gga gag      14057
Glu Glu Gly  Glu Ala Glu Glu Asp  Ala Ile Asp Asp Glu  Gly Glu
        1440              1445              1450

gcg gag gag  gga gag gcg gag gag  gac gcg att gac gac  gag gga      14102
Ala Glu Glu  Gly Glu Ala Glu Glu  Asp Ala Ile Asp Asp  Glu Gly
        1455              1460              1465

gag gcg gag  gag gga gag gcg gag  gag gga gag gcg gag  gag gga      14147
Glu Ala Glu  Glu Gly Glu Ala Glu  Glu Gly Glu Ala Glu  Glu Gly
        1470              1475              1480

gag gcg gag  gag gac gcg atc gac  gac gag gga gag gcg  gag gag      14192
Glu Ala Glu  Glu Asp Ala Ile Asp  Asp Glu Gly Glu Ala  Glu Glu
        1485              1490              1495

gac gcg gcg  gag gag gac gcg atc  gac gac gag gga gag  gcg gag      14237
Asp Ala Ala  Glu Glu Asp Ala Ile  Asp Asp Glu Gly Glu  Ala Glu
        1500              1505              1510

gag gat tat  ttt tct gta agt caa  gtt tgc agt cga gac  gcg gat      14282
Glu Asp Tyr  Phe Ser Val Ser Gln  Val Cys Ser Arg Asp  Ala Asp
        1515              1520              1525

gag gtt tat  ttt acg tta gac ccg  gaa ata agt tac agt  acc gat      14327
Glu Val Tyr  Phe Thr Leu Asp Pro  Glu Ile Ser Tyr Ser  Thr Asp
        1530              1535              1540

ctt cgc att  gca aag gtt atg gag  cct gcg gta tca aag  gaa ctt      14372
Leu Arg Ile  Ala Lys Val Met Glu  Pro Ala Val Ser Lys  Glu Leu
        1545              1550              1555

aat gta tca  aaa cgt tgt gtt gaa  cct gtt acc cta aca  ggc tct      14417
Asn Val Ser  Lys Arg Cys Val Glu  Pro Val Thr Leu Thr  Gly Ser
        1560              1565              1570
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atg tta gcg  cat aat ggg ttt gat  gag tcc tgg ttt gct  atg cgc        14462
Met Leu Ala  His Asn Gly Phe Asp  Glu Ser Trp Phe Ala  Met Arg
        1575              1580              1585

gaa tgt acc  cgt cgc gaa tat att  acg gtc caa gga tta  tac gac        14507
Glu Cys Thr  Arg Arg Glu Tyr Ile  Thr Val Gln Gly Leu  Tyr Asp
        1590              1595              1600

cca att cat  tta cgg tat cag ttt  gat act tcc cgg atg  aca ccc        14552
Pro Ile His  Leu Arg Tyr Gln Phe  Asp Thr Ser Arg Met  Thr Pro
        1605              1610              1615

cca cag att  ttg aga act ata cca  gcc ctt cct aac atg  aca ctt        14597
Pro Gln Ile  Leu Arg Thr Ile Pro  Ala Leu Pro Asn Met  Thr Leu
        1620              1625              1630

ggt gaa ctt  tta ttg att ttt cct  att gaa ttt atg gcc  cag cca        14642
Gly Glu Leu  Leu Leu Ile Phe Pro  Ile Glu Phe Met Ala  Gln Pro
        1635              1640              1645

att tct ata  gaa cgt att tta gtt  gaa gat gta ttt tta  gat agg        14687
Ile Ser Ile  Glu Arg Ile Leu Val  Glu Asp Val Phe Leu  Asp Arg
        1650              1655              1660

cgg gct tcc  agt aaa aca cat aaa  tac ggc ccg cgt tgg  aat tcc        14732
Arg Ala Ser  Ser Lys Thr His Lys  Tyr Gly Pro Arg Trp  Asn Ser
        1665              1670              1675

gtc tac gca  ctt cca tat aat gcg  ggt aaa atg tat gta  caa cac        14777
Val Tyr Ala  Leu Pro Tyr Asn Ala  Gly Lys Met Tyr Val  Gln His
        1680              1685              1690

att cct ggg  ttt tat gac gtg tcc  tta cgt gct gtg ggc  caa gga        14822
Ile Pro Gly  Phe Tyr Asp Val Ser  Leu Arg Ala Val Gly  Gln Gly
        1695              1700              1705

acg gcc att  tgg cat cac atg ata  tta tcc aca gca gca  tgc gct        14867
Thr Ala Ile  Trp His His Met Ile  Leu Ser Thr Ala Ala  Cys Ala
        1710              1715              1720

att tct aat  cgc att tca cat gga  gat gga tta gga ttt  ttg tta        14912
Ile Ser Asn  Arg Ile Ser His Gly  Asp Gly Leu Gly Phe  Leu Leu
        1725              1730              1735

gac gcg gca  att cgt att agc gca  aac tgt att ttt ttg  gga cgt        14957
Asp Ala Ala  Ile Arg Ile Ser Ala  Asn Cys Ile Phe Leu  Gly Arg
        1740              1745              1750

aac gat aat  ttt ggc gtg ggg gat  cca tgt tgg tta gaa  gac cat        15002
Asn Asp Asn  Phe Gly Val Gly Asp  Pro Cys Trp Leu Glu  Asp His
        1755              1760              1765

ctt gcc gga  tta cca cga gaa gcc  gta ccc gac gta ctc  caa gtg        15047
Leu Ala Gly  Leu Pro Arg Glu Ala  Val Pro Asp Val Leu  Gln Val
        1770              1775              1780

aca cag ttg  gtt ttg cca aat cgg  ggt cca acg gtt gcc  att atg        15092
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Thr Gln Leu  Val Leu Pro Asn Arg  Gly Pro Thr Val Ala  Ile Met
    1785                 1790             1795

cgt ggt ttt  ttt ggg gcg ttg gca  tat tgg ccc gaa cta  aga att    15137
Arg Gly Phe  Phe Gly Ala Leu Ala  Tyr Trp Pro Glu Leu  Arg Ile
    1800                 1805             1810

gct ata agt  gaa cca tct aca tct  ttg gtg cga tat gct  acc ggt    15182
Ala Ile Ser  Glu Pro Ser Thr Ser  Leu Val Arg Tyr Ala  Thr Gly
    1815                 1820             1825

cac atg gaa  ctt gcc gaa tgg ttt  tta ttt tca cgt aca  cat agt    15227
His Met Glu  Leu Ala Glu Trp Phe  Leu Phe Ser Arg Thr  His Ser
    1830                 1835             1840

tta aag cca  caa ttt acc cca acg  gaa cgg gaa atg tta  gcg tca    15272
Leu Lys Pro  Gln Phe Thr Pro Thr  Glu Arg Glu Met Leu  Ala Ser
    1845                 1850             1855

ttt ttt acg  ttg tat gtt act ctt  ggt gga gga atg ttg  aac tgg    15317
Phe Phe Thr  Leu Tyr Val Thr Leu  Gly Gly Gly Met Leu  Asn Trp
    1860                 1865             1870

atc tgt aga  gca act gca atg tat  tta gct gct cct tac  cat tcc    15362
Ile Cys Arg  Ala Thr Ala Met Tyr  Leu Ala Ala Pro Tyr  His Ser
    1875                 1880             1885

cgt tcg gct  tac atc gcg gtc tgt  gaa tct ctg ccc tat  tac tat    15407
Arg Ser Ala  Tyr Ile Ala Val Cys  Glu Ser Leu Pro Tyr  Tyr Tyr
    1890                 1895             1900

atc ccg gtt  aat agt gac ctg tta  tgt gat tta gag gta  tta ctg    15452
Ile Pro Val  Asn Ser Asp Leu Leu  Cys Asp Leu Glu Val  Leu Leu
    1905                 1910             1915

tta ggc gag  gtc gac ctc cca act  gtt tgt gaa tcc tac  gca act    15497
Leu Gly Glu  Val Asp Leu Pro Thr  Val Cys Glu Ser Tyr  Ala Thr
    1920                 1925             1930

att gca cac  gaa tta acc gga tat  gag gct gtt cgc aca  gca gcc    15542
Ile Ala His  Glu Leu Thr Gly Tyr  Glu Ala Val Arg Thr  Ala Ala
    1935                 1940             1945

aca aat ttt  atg ata gag ttt gcc  gat tgt tat aag gaa  agt gag    15587
Thr Asn Phe  Met Ile Glu Phe Ala  Asp Cys Tyr Lys Glu  Ser Glu
    1950                 1955             1960

acc gat tta  atg gta agc gcg tac  ctg ggg gcc gtt tta  ttg tta    15632
Thr Asp Leu  Met Val Ser Ala Tyr  Leu Gly Ala Val Leu  Leu Leu
    1965                 1970             1975

caa cgg gtg  ttg ggt cat gca aat  ctt ctt ttg ttg ctt  ctc tcc    15677
Gln Arg Val  Leu Gly His Ala Asn  Leu Leu Leu Leu Leu  Leu Ser
    1980                 1985             1990

ggt gct gcg  ttg tac gga gga tgt  tca att tac atc ccc  cga ggt    15722
Gly Ala Ala  Leu Tyr Gly Gly Cys  Ser Ile Tyr Ile Pro  Arg Gly
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att tta gat  gca tat aat act tta  atg ttg gca gca agt  cct ctt    15767
Ile Leu Asp  Ala Tyr Asn Thr Leu  Met Leu Ala Ala Ser  Pro Leu
        2010                 2015                 2020

tac gct cac  caa act tta aca tcc  ttt tgg aaa gac cgc  gat gat    15812
Tyr Ala His  Gln Thr Leu Thr Ser  Phe Trp Lys Asp Arg  Asp Asp
        2025                 2030                 2035

gca atg caa  act ttg ggg att cga  ccg aca acg gac gtt  tta ccc    15857
Ala Met Gln  Thr Leu Gly Ile Arg  Pro Thr Thr Asp Val  Leu Pro
        2040                 2045                 2050

aaa gag caa  gac agg ata gtt cag  gca tca cct ata gag  atg aac    15902
Lys Glu Gln  Asp Arg Ile Val Gln  Ala Ser Pro Ile Glu  Met Asn
        2055                 2060                 2065

ttc cgt ttt  gtg gga ttg gag acc  atc tat ccc cga gaa  cag ccc    15947
Phe Arg Phe  Val Gly Leu Glu Thr  Ile Tyr Pro Arg Glu  Gln Pro
        2070                 2075                 2080

att ccc tcc  gtg gac cta gcc gaa  aat ctt atg caa tac  agg aat    15992
Ile Pro Ser  Val Asp Leu Ala Glu  Asn Leu Met Gln Tyr  Arg Asn
        2085                 2090                 2095

gaa att ctg  ggt ttg gat tgg aaa  agc gta gcc atg cat  tta cta    16037
Glu Ile Leu  Gly Leu Asp Trp Lys  Ser Val Ala Met His  Leu Leu
        2100                 2105                 2110

cga aaa tat  taa gggttgtgat tttttcatt aggatgaaaa gaacgtttcc    16089
Arg Lys Tyr
        2115
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tagccacacc cacaaaggag tttgtaaaat aaaatctctg tttagacctt aaaatttgtt 16149

gtgtgtgttg tgtgggggt ccgtgaggat cgacctttac aagatataat ttgtccatat 16209

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cgca atg ttt tct cgg ttt  gcg cgt tcc ttt tcc  agc gat gat aga   16255
     Met Phe Ser Arg Phe  Ala Arg Ser Phe Ser  Ser Asp Asp Arg
              2120                 2125

acg  cgt aaa tct tat gat  ggt agt tac caa agt  ttt aat gcc ggc   16300
Thr  Arg Lys Ser Tyr Asp  Gly Ser Tyr Gln Ser  Phe Asn Ala Gly
2130              2135                 2140

gaa  cgt gat ttg ccc aca  cct acc cgg gac tgg  tgt tct att tcc   16345
Glu  Arg Asp Leu Pro Thr  Pro Thr Arg Asp Trp  Cys Ser Ile Ser
2145              2150                 2155

caa  cgc ata acc agc gag  cgc gtg agg gat gga  tgt ctt att cca   16390
Gln  Arg Ile Thr Ser Glu  Arg Val Arg Asp Gly  Cys Leu Ile Pro
2160              2165                 2170

acg  ccc ggc gag gct ttg  gag acg gcg gta aag  gct tta tct gaa   16435
Thr  Pro Gly Glu Ala Leu  Glu Thr Ala Val Lys  Ala Leu Ser Glu
2175              2180                 2185
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aag acc gac agc cta aca   tcg ccg gtt tta caa   agt acc gaa aga      16480
Lys Thr Asp Ser Leu Thr   Ser Pro Val Leu Gln   Ser Thr Glu Arg
2190             2195                 2200

cac agt gtt ctg ctt gga   tta cac cat aat aat   gtt cct gaa tcg      16525
His Ser Val Leu Leu Gly   Leu His His Asn Asn   Val Pro Glu Ser
2205             2210                 2215

ttg gtg gtc tcg tgt atg   tct aac gat gtt cat   gac ggg ttt atg      16570
Leu Val Val Ser Cys Met   Ser Asn Asp Val His   Asp Gly Phe Met
2220             2225                 2230

cag cgt tat atg gaa aca   att caa aga tgt ttg   gat gac ctg aaa      16615
Gln Arg Tyr Met Glu Thr   Ile Gln Arg Cys Leu   Asp Asp Leu Lys
2235             2240                 2245

ctt tct ggg gat gga ctt   tgg tgg gtt tat gaa   aat aca tat tgg      16660
Leu Ser Gly Asp Gly Leu   Trp Trp Val Tyr Glu   Asn Thr Tyr Trp
2250             2255                 2260

cag tat ctc aaa tac acc   aca gga gcc gag gta   ccg gtg act tca      16705
Gln Tyr Leu Lys Tyr Thr   Thr Gly Ala Glu Val   Pro Val Thr Ser
2265             2270                 2275

gag aag gta aat aaa aag   tct aaa tcc acg gtt   ttg ttg ttt tca      16750
Glu Lys Val Asn Lys Lys   Ser Lys Ser Thr Val   Leu Leu Phe Ser
2280             2285                 2290

tcc gta gtt gcc aat aaa   cca ata tcc aga cat   cct ttt aaa tct      16795
Ser Val Val Ala Asn Lys   Pro Ile Ser Arg His   Pro Phe Lys Ser
2295             2300                 2305

aaa gtt ata aat tcg gat   tac cgg gga ata tgt   cag gag cta cgt      16840
Lys Val Ile Asn Ser Asp   Tyr Arg Gly Ile Cys   Gln Glu Leu Arg
2310             2315                 2320

gag gcg tta gga gct gtg   caa aag tat atg tat   ttt atg cgt cca      16885
Glu Ala Leu Gly Ala Val   Gln Lys Tyr Met Tyr   Phe Met Arg Pro
2325             2330                 2335

gat gat cct aca aac ccc   agc ccg gat aca aga   ata cgt gta caa      16930
Asp Asp Pro Thr Asn Pro   Ser Pro Asp Thr Arg   Ile Arg Val Gln
2340             2345                 2350

gaa att gcg gct tac acg   gct act ggc tac ggg   tgg atg tta tgg      16975
Glu Ile Ala Ala Tyr Thr   Ala Thr Gly Tyr Gly   Trp Met Leu Trp
2355             2360                 2365

ttc ttg gac gtt gtg gac   gcc agg gta tgt cgc   cat ctc aaa ctt      17020
Phe Leu Asp Val Val Asp   Ala Arg Val Cys Arg   His Leu Lys Leu
2370             2375                 2380

caa ttt cga cgg att cga   ggg ccg cgc gcg tct   gtt att cca gat      17065
Gln Phe Arg Arg Ile Arg   Gly Pro Arg Ala Ser   Val Ile Pro Asp
2385             2390                 2395
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gat   ttg ctt aga cga cat   tta aaa acg ggt cct   gcg gtc tca gcg     17110
Asp   Leu Leu Arg Arg His   Leu Lys Thr Gly Pro   Ala Val Ser Ala
2400                2405               2410

ggc   aca gga gtt gcg ttt   att tta gca gca aca   act gcc agc gct     17155
Gly   Thr Gly Val Ala Phe   Ile Leu Ala Ala Thr   Thr Ala Ser Ala
2415                2420               2425

ctt   act gcg ctt ttg cgt   att agt gta tta tgg   cga aag gaa gag     17200
Leu   Thr Ala Leu Leu Arg   Ile Ser Val Leu Trp   Arg Lys Glu Glu
2430                2435               2440

tgg   cgg gat ggt tta aat   gga acc gca gct gca   att gtt gcg gcg     17245
Trp   Arg Asp Gly Leu Asn   Gly Thr Ala Ala Ala   Ile Val Ala Ala
2445                2450               2455

gtt   gaa ctt att acg ctt   ttg cac cac cat ttt   caa tac tta att     17290
Val   Glu Leu Ile Thr Leu   Leu His His His Phe   Gln Tyr Leu Ile
2460                2465               2470

aat   atg atg ctt att gga   tat gca tgt tgg ggg   gat ggg gga tta     17335
Asn   Met Met Leu Ile Gly   Tyr Ala Cys Trp Gly   Asp Gly Gly Leu
2475                2480               2485

aac   gat cct tat ata tta   aag gcg cta cgt gcc   cag gga cgg ttt     17380
Asn   Asp Pro Tyr Ile Leu   Lys Ala Leu Arg Ala   Gln Gly Arg Phe
2490                2495               2500

tta   tat ttt gcg ggt cag   ttg gtc aga aca atg   tca aca cac agt     17425
Leu   Tyr Phe Ala Gly Gln   Leu Val Arg Thr Met   Ser Thr His Ser
2505                2510               2515

tgg   gtt gtg tta gag acc   agc acc cat atg tgg   ttt tcc cgg gcc     17470
Trp   Val Val Leu Glu Thr   Ser Thr His Met Trp   Phe Ser Arg Ala
2520                2525               2530

gtg   gcg cag agt att tta   gca cat ggg ggt aaa   ccc aca aag tat     17515
Val   Ala Gln Ser Ile Leu   Ala His Gly Gly Lys   Pro Thr Lys Tyr
2535                2540               2545

tat   gct cag gtt ctt gcc   gcc agt aaa cgg tat   act ccg tta cat     17560
Tyr   Ala Gln Val Leu Ala   Ala Ser Lys Arg Tyr   Thr Pro Leu His
2550                2555               2560

tta   aga cgt ata tcc gaa   cca tcg agt gtg tct   gat cag ccg tat     17605
Leu   Arg Arg Ile Ser Glu   Pro Ser Ser Val Ser   Asp Gln Pro Tyr
2565                2570               2575

att   cgt ttt aat cga ctg   gga tct cca ata ggg   aca ggt ata ggg     17650
Ile   Arg Phe Asn Arg Leu   Gly Ser Pro Ile Gly   Thr Gly Ile Gly
2580                2585               2590

aat   ttg gaa tgt gtc tgt   tta acg gga aat tat   tta tct gac gac     17695
Asn   Leu Glu Cys Val Cys   Leu Thr Gly Asn Tyr   Leu Ser Asp Asp
2595                2600               2605

gta   aat gca agt tcg cat   gta att aat aca gaa   gca ccg tta aac     17740
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Val   Asn Ala Ser Ser His   Val Ile Asn Thr Glu   Ala Pro Leu Asn
2610                2615                2620

agt ata gca ccc gat aca   aat aga cag cgg act   tct cgc gtt tta        17785
Ser Ile Ala Pro Asp Thr   Asn Arg Gln Arg Thr   Ser Arg Val Leu
2625                2630                2635

gtt cgt cca gac acg ggt   ttg gat gta act gtc   cga aaa aac cac        17830
Val Arg Pro Asp Thr Gly   Leu Asp Val Thr Val   Arg Lys Asn His
2640                2645                2650

tgt ctg gac ata ggc cat   acg gac ggt agt cca   gtt gac cca acg        17875
Cys Leu Asp Ile Gly His   Thr Asp Gly Ser Pro   Val Asp Pro Thr
2655                2660                2665

tat cct gat cat tac acc   cgg ata aag gcg gaa   tat gaa ggt ccg        17920
Tyr Pro Asp His Tyr Thr   Arg Ile Lys Ala Glu   Tyr Glu Gly Pro
2670                2675                2680

gtt cgg gat gaa tca aac   aca atg ttt gac caa   aga tcg gat tta        17965
Val Arg Asp Glu Ser Asn   Thr Met Phe Asp Gln   Arg Ser Asp Leu
2685                2690                2695

cgt cac ata gaa acc caa   gca tct tta aat gat   cac gta tat gaa        18010
Arg His Ile Glu Thr Gln   Ala Ser Leu Asn Asp   His Val Tyr Glu
2700                2705                2710

aat ata cca ccc aag gaa   gtg ggt ttt aac tca   tct tca gac ctg        18055
Asn Ile Pro Pro Lys Glu   Val Gly Phe Asn Ser   Ser Ser Asp Leu
2715                2720                2725

gat gtg gat agc ctt aac   ggg tac acc tcc gga   gac atg cat aca        18100
Asp Val Asp Ser Leu Asn   Gly Tyr Thr Ser Gly   Asp Met His Thr
2730                2735                2740

gac gat gac tta tca cca   gat ttt ata ccc aac   gac gtt ccc gtt        18145
Asp Asp Asp Leu Ser Pro   Asp Phe Ile Pro Asn   Asp Val Pro Val
2745                2750                2755

aga tgt aaa acc acg gtt   acg ttt agg aaa aat   acg cct aag agt        18190
Arg Cys Lys Thr Thr Val   Thr Phe Arg Lys Asn   Thr Pro Lys Ser
2760                2765                2770

cat cat taa gtacagcggt taatagatag ttatggacta ggcactttgg              18239
His His
2775

cggtcatttc cacaaccagg ttaaaattgg gggatttggg agaaaatagt ctattgcgta     18299

ttttctgttc aataattgga ctgcgttatt taaaggtctg attggttgat tgggttataa     18359

aaggaattac tcctttaaat tttacttaat gtacccacaa tatcaagtgg tcgtttgtat     18419

ttaacgatta ttaccggtac c atg gga gac ttg  tca tgt tgg aca aag  gtg     18470
                        Met Gly Asp Leu  Ser Cys Trp Thr Lys  Val
                                 2780                2785
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ccg ggt ttt acg   tta acc ggc gaa ctt   cag tac tta aaa caa   gtg       18515
Pro Gly Phe Thr   Leu Thr Gly Glu Leu   Gln Tyr Leu Lys Gln   Val
            2790                 2795                 2800

gat gat att tta   agg tat gga gtt cgg   aaa cgc gat cga aca   gga       18560
Asp Asp Ile Leu   Arg Tyr Gly Val Arg   Lys Arg Asp Arg Thr   Gly
            2805                 2810                 2815

atc gga acg tta   tct tta ttt gga atg   caa gct cga tac aat   ttg       18605
Ile Gly Thr Leu   Ser Leu Phe Gly Met   Gln Ala Arg Tyr Asn   Leu
            2820                 2825                 2830

cga aat gaa ttt   cct ctt tta act aca   aag cgt gtt ttt tgg   agg       18650
Arg Asn Glu Phe   Pro Leu Leu Thr Thr   Lys Arg Val Phe Trp   Arg
            2835                 2840                 2845

gcc gtc gtg gaa   gag ttg tta tgg ttt   atc cgc ggg tca acc   gat       18695
Ala Val Val Glu   Glu Leu Leu Trp Phe   Ile Arg Gly Ser Thr   Asp
            2850                 2855                 2860

tcc aaa gaa ctc   gcc gct aaa gat ata   cac ata tgg gat ata   tac       18740
Ser Lys Glu Leu   Ala Ala Lys Asp Ile   His Ile Trp Asp Ile   Tyr
            2865                 2870                 2875

gga tcg agc aaa   ttt cta aat agg aat   ggc ttc cat aaa aga   cac       18785
Gly Ser Ser Lys   Phe Leu Asn Arg Asn   Gly Phe His Lys Arg   His
            2880                 2885                 2890

acg ggg gac ctt   ggc ccc att tac ggc   ttc cag tgg aga cat   ttt       18830
Thr Gly Asp Leu   Gly Pro Ile Tyr Gly   Phe Gln Trp Arg His   Phe
            2895                 2900                 2905

gga gcg gaa tat   aaa gac tgt caa tca   aac tat tta cag caa   gga       18875
Gly Ala Glu Tyr   Lys Asp Cys Gln Ser   Asn Tyr Leu Gln Gln   Gly
            2910                 2915                 2920

atc gat cag ctg   caa act gtt ata gat   aca att aaa aca aac   cca       18920
Ile Asp Gln Leu   Gln Thr Val Ile Asp   Thr Ile Lys Thr Asn   Pro
            2925                 2930                 2935

gaa agc cga cga   atg att ata tcg tct   tgg aat cca aag gat   atc       18965
Glu Ser Arg Arg   Met Ile Ile Ser Ser   Trp Asn Pro Lys Asp   Ile
            2940                 2945                 2950

ccc tta atg gta   cta cct cca tgt cac   acg tta tgt cag ttt   tac       19010
Pro Leu Met Val   Leu Pro Pro Cys His   Thr Leu Cys Gln Phe   Tyr
            2955                 2960                 2965

gtt gca aac ggt   gaa tta tcc tgc caa   gta tac cag aga tcg   ggg       19055
Val Ala Asn Gly   Glu Leu Ser Cys Gln   Val Tyr Gln Arg Ser   Gly
            2970                 2975                 2980

gat atg ggc ctt   ggg gta ccg ttc aac   att gct gga tat gca   ctt       19100
Asp Met Gly Leu   Gly Val Pro Phe Asn   Ile Ala Gly Tyr Ala   Leu
            2985                 2990                 2995

ctt acc tac ata   gta gcg cat gtt aca   gga ctt aaa acc gga   gat       19145
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Leu Thr Tyr Ile  Val Ala His Val Thr  Gly Leu Lys Thr Gly  Asp
            3000                 3005              3010

tta att cat aca  atg ggg gat gca cat  att tac ttg aat cat  ata     19190
Leu Ile His Thr  Met Gly Asp Ala His  Ile Tyr Leu Asn His  Ile
            3015                 3020              3025

gat gct tta aaa  gtg cag cta gct cga  tcc cca aaa cct ttt  cct     19235
Asp Ala Leu Lys  Val Gln Leu Ala Arg  Ser Pro Lys Pro Phe  Pro
            3030                 3035              3040

tgc ctt aaa att  att cga aat gta aca  gat ata aac gac ttt  aaa     19280
Cys Leu Lys Ile  Ile Arg Asn Val Thr  Asp Ile Asn Asp Phe  Lys
            3045                 3050              3055

tgg gac gat ttt  cag ctt gat gga tat  aat cca cac ccc ccc  cta     19325
Trp Asp Asp Phe  Gln Leu Asp Gly Tyr  Asn Pro His Pro Pro  Leu
            3060                 3065              3070

aaa atg gaa atg  gct ctt taa tggattttta aatgttgtca agacagtaga      19376
Lys Met Glu Met  Ala Leu
            3075

tgtgttgcga atgtaataaa atgatataca cagacgcgtt tggttggttt ctgtttatga   19436

acagcaacgg atgcataggg ttgcgataac tgcgataaga cccaatgtcc caaggataga   19496

tatcacacca attataactg ctacaacgga aaatgtagtg gcgtaggtag atgcatcgta   19556

ggtataaacg gccgaaaacg gagggaattt tttagggtaa ccatctagat gacacgaata   19616

ggtgataggt ccgtcgagtt ccgatgttgg acaagaactt tgcatgttta caaaccgttt   19676

gttttgatca cacaccccag taatctcact gttttcgtgg ttaatgggag aatcgttaac   19736

ccaccatacg aaatgtacaa cgccacgtgg cacacatttt gccgtacata ctatgtgtcc   19796

atcaataata cctatagaca cgttgggaaa tggatagacg tcaggggtaa cgacagcaga   19856

atatttcata ttagagacgc catcccgaat ccataaaaca ttacattgga tggctggggg   19916

tgggtaatcc atttgttttt gctgtggaat tcgtaccgcc gaaacataac taaataatcc   19976

attggcatat tcttgtattg catcggttat aaaatttttt ccgatgttac caaaccttga   20036

agtccaccga acacgtaccg agtgcggtgg ataatacttt gatacgttac agtaggctgc   20096

gtatgtctgt ccggttaaga ctggatcgcc gacaacggta atatttggac gataatacgt   20156

tgtaactgta atactgtgtt ccgatatgac gttcttagtt tttgtattaa cgactcgcca   20216

aatatacgtt ccctccgtgg tagcatccat agataaaatt gttacagaaa aatcagacgt   20276

tgttttaaca tctggtatta cataattttc cttagcgtgt gtaaatatct cagggttgtt   20336

tattaagttt aaatcggcac tgttgctata taacataacc ggtaaatctg gcatgcgtat   20396
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taacgcattg cccagttgac ggtgcggatc tataaggtga cgcgtaaacc aaacttcaat   20456

atgaagatcg gggcgtataa gcgacttcca ccttgttata tttgaacctt ccggatctaa   20516

agaatattgt tcatatgttt tttgttgctg cttaaaggcc gcctgttgtc cggtcgttag   20576

acgcatgtaa caaggcatga taaatgtgtg aaaatagggt atggattgta ttccgccgtg   20636

aacgcattgt atattttcat atagaaaagg tggttgtgaa tgttgggtgt tggctgcggg   20696

atcgggcttt cgggaagcgg ccgaggtggg cgcgacggcg ggatcgggct ttcgggtagc   20756

ggccgaggtg ggcgcgacgg cgggatcggg ctttcgggaa gcggccgagg tgggcgcgac   20816

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cgcgacggcg ggatcgggct ttcgggaagc ggccgaggtg ggcgcgacgg cgggatcggg   20996

ctttcgggta gcggccgagg tatataattc agttatactt acgggtgtgg gttgagattc   21056

agtcgataat tgtatacacg cgatcgttaa aattaaattt atttgtatcc gcttcatcct   21116

ggttttttatt gacacatcca cgctcccctt aaataaaaga ttaaaacacc caccgcggaa   21176

tttaaatgat ggaaacgttt ttttcgacat tgggaataat aaaaacggct tttgcaactt   21236

taaaaacttt atttatctcg attacgatac atatgtacca catagatagc atagatttat   21296

tataatataa acacacacgt gatatacttt agtgatatga gatgccataa aacagtcaat   21356

aggtttaacg cttagtctca tcatctgaat acacgtcaaa cccgccgcaa ctgttgatgt   21416

tagaattata atagctcccc atgaaatgcc ggcaaatgtt acagctatac ccgtcaccga   21476

ggtcgttgta tataatacaa ttacccatag gttttttttt tcttgatata aaacggcaaa   21536

accctgtaac ccaaatgcta taatatgacc tcctattgaa actgctaacg ttacttgtgt   21596

aagtttgata aaatgattta atttaattat atgtgagatt gcccacatta atggggtaac   21656

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ggcaaaacct aaatctgtat aagtgtttaa ttgcttatgg cgatttttac gatatataca   21836

cgtatcttgc aaatcggtgg cggcatcgac aattgaaact agtgtgacaa tagatataca   21896

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tcccaaccca gttcccaaca tcataacata aaaataaata tgcggtccat tgaatgtcgt   22016

aacaaagttg tagtaatgga tatgcacagc agccactgtt ccggtaatcg cggatatgga   22076

aattcccagt aattctacaa atggaagatc ccgggatatt gggcaaccaa ccgcccataa   22136
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cacagcaaaa cccaacacga ccaccgtctg caaacatcgt cccaattttg ctaatgtgcg   22196

tagaaatttc acggatgttg gccataaccc cgaaacgacg atcaacccca taatagttgc   22256

attgacggca gcttcgcaga cgtgatattg taaaattaac ccggacgtga taacgcttgc   22316

ttgtagtccc acgagaaaca accgcgatgc tgaggttatt gcacacgaat tacattcttg   22376

agggtttccg acacatcctt ggattgattg agcgcggatt aattctctgt ctaacacacc   22436

caggttttca tcatggacag ctctttcacc attcacggcc atgtcttaag tttaataatt   22496

caaaacaaat aaaaatgtgt tcatctatgg tacacacaag tttgtatgta aaatataagc   22556

aaaagttgca cttatttaac tgtacatatt acgtcagatt cacgtgataa ttcagaataa   22616

tccagggttc ctgcagggtc cactggagga gccacacaat attcgcgaat tccgattccc   22676

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ttcgcaaata attgcatcga ggttaatttt tctttaaggt ctttgggact taagaacgtt   22856

gcataaaaaa aagaatgcac gggtgcggaa cgttggatat acaatccaac catgggggag   22916

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ccgctgccat aaacaacatt attaaggatc cttttgaat ttgtgattga gcgtattaaa    23096

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gacggatctt ttgtatggcg aaacgcgtca ataagcgagg accgtccctc cgttgccgcg   23516

agtacaacca ttctcggccc agtccaatta tactggtcaa acatatttgc cggtatagga   23576

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aaaatagaat cccttagtct attaaccaga ggtgatatag acgaaattaa accagtaagc   23696

gttttttccg ttaaaacagc tctggcgatt tctggggcgt caaaacccgc atgcaattcc   23756

atgtccaaag catcgtctgt acgcgacctc aaatccataa tttactactt aaaatgttta   23816
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ctatagaaaa agtaatcata tgtaaacaca cgagtttcgt taatatgttt gtttaacccg   23876

atccggtgac ttaagtacat aaacaggcat gatatttgaa tagtacggcc catgggaggg   23936

aacatttcca cgtgttccaa tacaggggt gttccttaat agggactgtg caataaaata    23996

cgtaagaagt taccagattt gatgtaatgt ttgtcataaa aaatatgtac atcattatat    24056

acgtctgtaa ttaacacaag atcacatcga agaattactg aagccgctgt gaaacctttc    24116

acaagacgat ataaacttgg ttaagtgtat tg atg ggg ctc  ttt gga ctg aca     24169
                                    Met Gly Leu  Phe Gly Leu Thr
                                                  3080
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cgc  ttt atc cat gaa cat  aaa ctg gtt aaa ccc  agc atc att tca        24214
Arg  Phe Ile His Glu His  Lys Leu Val Lys Pro  Ser Ile Ile Ser
3085                3090                3095

acg  cca ccc gga gtt tta  acc ccc gtg gcg gta  gac gta tgg aac        24259
Thr  Pro Pro Gly Val Leu  Thr Pro Val Ala Val  Asp Val Trp Asn
3100                3105                3110

gtc  atg tac aca ttg ttg  gaa cgt tta tac cct  gtg ggt aaa cgc        24304
Val  Met Tyr Thr Leu Leu  Glu Arg Leu Tyr Pro  Val Gly Lys Arg
3115                3120                3125

gag  aat tta cac gga cca  tct gta acg ata cat  tgt ctt gga gtc        24349
Glu  Asn Leu His Gly Pro  Ser Val Thr Ile His  Cys Leu Gly Val
3130                3135                3140

tta  ttg cgg cta tta aca  caa cgg tca tac tat  ccg ata ttt gta        24394
Leu  Leu Arg Leu Leu Thr  Gln Arg Ser Tyr Tyr  Pro Ile Phe Val
3145                3150                3155

ttg  gaa cgt tgt aca gac  ggc cca tta tca cgt  gga gcc aag gca        24439
Leu  Glu Arg Cys Thr Asp  Gly Pro Leu Ser Arg  Gly Ala Lys Ala
3160                3165                3170

att  atg tca cgg gcc atg  aac cac gat gaa agg  gga acc tcg gac        24484
Ile  Met Ser Arg Ala Met  Asn His Asp Glu Arg  Gly Thr Ser Asp
3175                3180                3185

tta  acc cgt gtt cta cta  tca tcc aac aca tca  tgt tct atc aag        24529
Leu  Thr Arg Val Leu Leu  Ser Ser Asn Thr Ser  Cys Ser Ile Lys
3190                3195                3200

tat  aac aaa aca tcg gaa  aca tat gac agt gtg  ttt cga aac tct        24574
Tyr  Asn Lys Thr Ser Glu  Thr Tyr Asp Ser Val  Phe Arg Asn Ser
3205                3210                3215

tcc  acg agt tgt att cct  agc gaa gaa aac aaa  tcc cag gat atg        24619
Ser  Thr Ser Cys Ile Pro  Ser Glu Glu Asn Lys  Ser Gln Asp Met
3220                3225                3230

ttt  ttg gac ggt tgt cca  cga caa act gac aag  acg atc tgc ctg        24664
Phe  Leu Asp Gly Cys Pro  Arg Gln Thr Asp Lys  Thr Ile Cys Leu
3235                3240                3245
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cgc  gac caa aac gta tgc  agt ctt acc tct aca  atg cca tcc cga      24709
Arg  Asp Gln Asn Val Cys  Ser Leu Thr Ser Thr  Met Pro Ser Arg
3250                 3255                 3260

gga  cat cct aac cat cga  tta tat cac aaa ttg  tgt gca agt ctt      24754
Gly  His Pro Asn His Arg  Leu Tyr His Lys Leu  Cys Ala Ser Leu
3265                 3270                 3275

att  aga tgg atg ggg tat  gca tac gtc gag gcg  gtt gac att gag      24799
Ile  Arg Trp Met Gly Tyr  Ala Tyr Val Glu Ala  Val Asp Ile Glu
3280                 3285                 3290

gcg  gac gag gca tgt gca  aac tta ttt cat acg  cgt aca gtg gct      24844
Ala  Asp Glu Ala Cys Ala  Asn Leu Phe His Thr  Arg Thr Val Ala
3295                 3300                 3305

ttg  gtt tat acg aca gat  act gat tta ctc ttc  atg ggc tgt gat      24889
Leu  Val Tyr Thr Thr Asp  Thr Asp Leu Leu Phe  Met Gly Cys Asp
3310                 3315                 3320

att  ttg tta gat gca att  cct atg ttt gct cca  gta gta cga tgt      24934
Ile  Leu Leu Asp Ala Ile  Pro Met Phe Ala Pro  Val Val Arg Cys
3325                 3330                 3335

cgc  gat ttg ctt caa tat  tta gga att aca tac  cct gaa ttt ttg      24979
Arg  Asp Leu Leu Gln Tyr  Leu Gly Ile Thr Tyr  Pro Glu Phe Leu
3340                 3345                 3350

gtt  gcc ttt gtt cgc tgt  cag acc gat ttg cat  aca agt gac aac      25024
Val  Ala Phe Val Arg Cys  Gln Thr Asp Leu His  Thr Ser Asp Asn
3355                 3360                 3365

cta  aaa tct gtt cag caa  gtt att cag gat acc  ggc ctg aaa gtt      25069
Leu  Lys Ser Val Gln Gln  Val Ile Gln Asp Thr  Gly Leu Lys Val
3370                 3375                 3380

cca  cat caa atg gac act  tca acg cgc tcc ccc  act tac gac tcg      25114
Pro  His Gln Met Asp Thr  Ser Thr Arg Ser Pro  Thr Tyr Asp Ser
3385                 3390                 3395

tgg  aga cat ggc gag gtt  ttc aaa agt ctt acc  gta gcc acg tcg      25159
Trp  Arg His Gly Glu Val  Phe Lys Ser Leu Thr  Val Ala Thr Ser
3400                 3405                 3410

ggt  aaa aca gaa aac gga  gtg tcc gtt tcc aaa  tat gca tct aac      25204
Gly  Lys Thr Glu Asn Gly  Val Ser Val Ser Lys  Tyr Ala Ser Asn
3415                 3420                 3425

cga  tcg gag gtg aca gta  gac gcc agt tgg gct  tta aac ctt ctg      25249
Arg  Ser Glu Val Thr Val  Asp Ala Ser Trp Ala  Leu Asn Leu Leu
3430                 3435                 3440

cca  ccc tca tcc tcc cca  ttg gat aat ttg gaa  cgc gca ttt gtt      25294
Pro  Pro Ser Ser Ser Pro  Leu Asp Asn Leu Glu  Arg Ala Phe Val
3445                 3450                 3455
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gaa  cat ata atc gcc gtg  gta act cca ttg acc  cgc ggt cgc cta    25339
Glu  His Ile Ile Ala Val  Val Thr Pro Leu Thr  Arg Gly Arg Leu
3460                 3465                 3470

aag  tta atg aaa cgt gta  aat att atg caa aat  acg gca gac cca    25384
Lys  Leu Met Lys Arg Val  Asn Ile Met Gln Asn  Thr Ala Asp Pro
3475                 3480                 3485

tat  atg gtt att aac acc  tta tat cat aac tta  aag ggg gaa aaa    25429
Tyr  Met Val Ile Asn Thr  Leu Tyr His Asn Leu  Lys Gly Glu Lys
3490                 3495                 3500

atg  gct cgc caa tac gca  cgt att ttt aaa cag  ttt att cct act    25474
Met  Ala Arg Gln Tyr Ala  Arg Ile Phe Lys Gln  Phe Ile Pro Thr
3505                 3510                 3515

cca  ctc cca cta aac act  gta tta aca aaa tat  tgg aat taa        25516
Pro  Leu Pro Leu Asn Thr  Val Leu Thr Lys Tyr  Trp Asn
3520                 3525                 3530

aacacacata agagcgactt aatggttcat tgttttattt tgctcgtata tacatgttat  25576

aaatcgttta tcactgtgcc cgcataagat gtactgtgtc tctcaaaaaa atttgtgttt  25636

ttatctgcaa tcataaatgc aagtggaaag tccgaatcgg gaggtggggt gttaaatagt  25696

tttggtacat taatcgctga taaaagcctg tccgcgctga atttcacgta ttgtgtaatt  25756

gcatcgacgt tcaccaaacg ggttttgggt gcatgggatt ttaaaaacgc acactcgatt  25816

tcaacggctt ccgaaaacag ttgatgtatt ctggtgatag cgggtttttc gggtacatag  25876

ttattgtata tacaacacga tgcgctggta tgtatggctt catctcggct tataaggtcg  25936

ttaaattgac aagttacaac aaatagtccg ttattgcgta aatatgcaat agccgcgaac  25996

gatgatacaa aaaaatgcc ctctataaga atcattagta tatattttc tgcaacggat    26056

gggttgtccc gtaccttttc ttccaaccat tgtacttttt gttggatcga cggattatta  26116

atagtgacat ttacgtattg tacccgcaac gattcatccc ctctgaacaa cattagttga  26176

atttgactat agacacgcgc gtggacaacc tcgatgcact cttgttcaat gtagtaatgg  26236

tgaatatcct tttgggaaaa gagttgggtt agagagccca aattaacatt taccagatca  26296

tctgccgccg ataaaaatgt aaaaataaat ctgtagaata ttagttcatc ttccgttaaa  26356

cagtccaagt attgataatc atcttcaatg ataaaatcgc tttctaacca acgattcgaa  26416

atgctcaggg cacgtaaatt gtttatatct ggacactccg gcctgtaaaa aaaatgactg  26476

caatctttct gatccatttt ggaatagttt cccgtgtaaa tttataaagc acaactggta  26536

caggttaatt cgcctcccgc aaacagtccg ctgttcgtag ctttacgaat tttacagtag  26596

tacatacccg ttttaaggcc ggctttatag gcacgtataa gcaaattcat tattttggag  26656
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gcgggaattg tcccgtctgg gcgttcctca ataaataaag tcattgattg actttggtca  26716

ataaatggcg ccctttctgc acacatatca acgagatcct cttgctcata ttcaaacgct  26776

gttttatatt ttaagagtgg gtgactatta gataaacagc caaacgaacg tattactgac  26836

cattggtttt tctcaagtat gtttataact tccagtcgtt tttcttcaca tgaatacata  26896

tctcttagtt cgtccataag gtctaagttg ggtctaagta actcacccga ggtggtgacc  26956

ttactaaaca tattattata aattggagag aaaccctcac tgcactccgt tacctgtgca  27016

gatgaaactg tgggcattaa cgctaagaac tgcgagttgt ataacccata agcgcaaata  27076

tcatctcgca gggtacacca tggtaaatct aaataactta tcgtagaaaa cccatcttgg  27136

tgtaaccatc ccttagcata tttactttcg gtaaaaccct taaacggggc taagccgcca  27196

atcttacaca tttccatgct tgttttcatt gtctcataca acattaactc cgctatttgt  27256

acatttaacc gtctagctgg ttgggaagtt aaatcaaatc ctaagcggag acaagttgta  27316

tgtaaccctt gtatgccaat gccaagtgat cggttgtttt ttacaccttt acatgatttt  27376

ttacatggaa agttcccagc cgccaggacc ccgtttaaaa aaataacagt cgttcttgct  27436

gtcaattgaa ggtcgtttaa attaaatgac actgggcctt tggataagca cgttgtaaga  27496

tttatgctgg caagattaca tacgccatgt tgatgagcgt ctgccttttg aacaatttcc  27556

gtacacaaat ttgaccccgt gatagcattt ccttgggtat tcatatgata attacgatta  27616

caggcatctt tgaacattaa aaaggggctt cctgttacag cagcactgcg tatgattgtg  27676

aatgcgatat cttgaatggg aacagaagaa acgcctaatc cttctctctc taaacgtaaa  27736

taggttgaag tgaatgcctc cccgtgtaat gttcgaagga tatcggctct gttatcaaaa  27796

agagtccact gaacattact agcccctttt agatagctta ggtatctttc aaaaaataaa  27856

tctggggtcc ataaacaaca aaatatgtta tcacatcgaa atatttcatc acgaaccaac  27916

attccacgtg tggccaaaac agtttgtaga tcgacgtgcc atggttctat gtaaacacaa  27976

actccagttg gtcgttcaca atcactgtta attgccataa ccatgcaatc taaaagtttt  28036

aaaactgcaa gaagaccttt cgtttgattt tccgtaggta ttaaattcag actctgtaga  28096

gaaattccca ctccacctcg actttgtaat accgttccca catcgcctgt gatagctcga  28156

acagctctcc caacagtgat ggattccggg tccattaaat aacaactggc cgttgccccg  28216

gtctctcgac ctaaaaacat cataaccggt gtagccggga caattttctg acatgccaac  28276

gctgtgaaaa atacccgaca gacatcagtc catgtataac catcatttat tccgggaata  28336
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agagttgcga ttttaggcag gtttacgatt tctgttgtca cggtggccgc cagtcttaaa   28396

aagaattggc aaagcgactc taatttacct tcctctaact tagttaaata aaagtcttcg   28456

tactttaaag cagactgtag tccaagggta gctaaagcgg ggtattgatc tttcaaaaac   28516

ggttctaata tagcccgacg aatttcgtcc ctccgccctt caattgcttg gcggactcgg   28576

ggagttaaac agagaattgg ggaagtcaac cacgtttcca tggaaacgga tcgtaggtta   28636

atacggcaat ggataagttc tccacaacat cggtacactc gctcatcttg tcgcgtcacc   28696

gccttaagtt ttgagacgat agtgctaata tactccatta attccaccgg tgtggttgat   28756

tcgggcggaa tgatgtattc cttgtagcca tgttgacata atcggtttat aatgtcatga   28816

accgtattaa aaattctttt gaactccata acggataacg tatttaggct ccggaataaa   28876

cctttaaacc ctaaactcac agctgagtta gttctacaat attgtagact cccttatata   28936

tggttacgta cagcctgccc ctccccagta tataatatca cgcaaaaccc acgctatgtt   28996

aaattcagtt tattttacat acatgcttta ataataacat tcgttccatg tatttgtacc   29056

cccccacaca accccctcta accaaatagt tggcacgtta taacctccga accgttccat   29116

gcgtcttgta taacgcacag actctgatgg aattgttcca attaacgtat atgccgcata   29176

catgcaggat aattgtgtgg gaagtccccg aaaatcgccg gtccattgat acaatcgctg   29236

tctagccaag ttccaattta ctcctgtaat ttcgccaata ctacatcgag ggcttgtcgg   29296

gtcattggat aactgcacaa gcggcaacgc ccttgtgtta tatggctggt gggtatttgc   29356

aacccttca gtcccccagg cggcattttc agctcgtatg cgtcctaaca ggaagccaat   29416

accacgacca aaacattgtt cgtttagttg gcttaatgca agatgcagtc ttacaccttc   29476

tcgttggcgt cgctgtgtat atacaaaaac caagaacaca tgcttcagtc cgtccgcgga   29536

aagatgtaaa tctttgtcaa cgtcccaaaa tacgcaggcc gggatgttgg ctgtgaccct   29596

gcgagttgaa gttttgtctg tacgtgcagc ttcttgggga cctttggcca cggcggttat   29656

attgcataaa ttatcctgaa tggtatattc cagcagggac ccaaaaaaac ttataaatcg   29716

atgtggaaat acatgacatt gtaccatcgc acgtaaacac tccgaaaacc ttatgagccg   29776

cgtttccata cgactgcatc cataggcaga aacaattgct gttctgttgg catccgctgc   29836

ctgtttatcc gtatattctt ctgcccggca tgcggcgatg aaacttaatg acgttacata   29896

tgctctaagc cccccacctt ctccaacggt ccaaggagcc gtgcaggcat tgaataggtt   29956

tcgtaaaccc tctagtagta catcggggtc acgtccagcc tgtgtaagtg tattagcttc   30016

tccaatcatg tcagatggat gacgaaggat taagacgatt gacccagcat gctcaatgtc   30076
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50

cggacgaaaa aaatcggtta atgacacttg ttggattagc tgtgtcgttg atttaaaatt   30136

atttaacggg agtctaatgg taacttgcgg gttaccaatt gaagttggat ttatttgaat   30196

gttgttcata cgattaataa caattgaacg gggggttact tgaatagacg cggtttctgt   30256

acgttttggt ggtacatgta tcggttgttt gttcagacct ccaaagcgag ggccaattgt   30316

taaatcgcga ctccaatttc cgaagaagcc cggagcataa gtcatatgaa gcccgttccc   30376

tatttgaata aaacggttat ttcctaaaag actgatatta gttccacata gcgtttgttc   30436

gtttaaagta aaatgcgagt tggttggttg actccccata gctgaggggt taaattcaca   30496

caatgcaatc gtgacgtggt actatctgaa atgttgcctg gggtatgtgt acacattata   30556

cagtcgtagt accgtttata taatgttagg taggaggagc ctataaaaat attttgattg   30616

gcgttaaaag gttcttcaac ttaccgtgac gtccttttta ttaacatgcg tttttattga   30676

tgttacattt atgtcttttc attccggacg gatgtagctt tttcatatca cgttataaag   30736

ttaagtcagc gtagaatata cc atg gaa gaa cca att tgt tat gat aca   30785
                          Met Glu Glu Pro Ile Cys Tyr Asp Thr
                                  3535   3540

caa aaa ctt ttg gat gat tta agt aac ttg aaa gta caa gaa gcg   30830
Gln Lys Leu Leu Asp Asp Leu Ser Asn Leu Lys Val Gln Glu Ala
            3545   3550   3555

gac aac gaa aga cca tgg tca cca gag aaa aca gaa atc gcc aga   30875
Asp Asn Glu Arg Pro Trp Ser Pro Glu Lys Thr Glu Ile Ala Arg
            3560   3565   3570

gtt aag gta gtt aag ttt tta cga tct acc cag aaa att cca gct   30920
Val Lys Val Val Lys Phe Leu Arg Ser Thr Gln Lys Ile Pro Ala
            3575   3580   3585

aaa cat ttt att cag ata tgg gaa ccc ctg cat tct aat atc tgt   30965
Lys His Phe Ile Gln Ile Trp Glu Pro Leu His Ser Asn Ile Cys
            3590   3595   3600

ttt gta tat tcc aat aca ttt ttg gcg gag gct gct ttc acg gcc   31010
Phe Val Tyr Ser Asn Thr Phe Leu Ala Glu Ala Ala Phe Thr Ala
            3605   3610   3615

gaa aat tta ccc gga ctg ttg ttt tgg aga cta gat cta gac tgg   31055
Glu Asn Leu Pro Gly Leu Leu Phe Trp Arg Leu Asp Leu Asp Trp
            3620   3625   3630

acg ata gag gag cca ggt aat agc tta aaa att tta acc cag cta   31100
Thr Ile Glu Glu Pro Gly Asn Ser Leu Lys Ile Leu Thr Gln Leu
            3635   3640   3645

tca agt gta gta caa gat tcc gag acg tta cat cgt tta tcg gcc   31145
Ser Ser Val Val Gln Asp Ser Glu Thr Leu His Arg Leu Ser Ala

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                3650                        3655                        3660

aat aaa tta cga   acc tcg tct aaa ttt   gga ccc gtt tcg ata   cac      31190
Asn Lys Leu Arg   Thr Ser Ser Lys Phe   Gly Pro Val Ser Ile   His
            3665                    3670                    3675

ttc att ata acg   gac tgg ata aat atg   tac gag gtc gcc tta   aag      31235
Phe Ile Ile Thr   Asp Trp Ile Asn Met   Tyr Glu Val Ala Leu   Lys
            3680                    3685                    3690

gat gca aca aca   gcc att gaa tca cca   ttc act cac gct cgt   att      31280
Asp Ala Thr Thr   Ala Ile Glu Ser Pro   Phe Thr His Ala Arg   Ile
            3695                    3700                    3705

gga atg ttg gaa   agc gcc att gca gct   tta aca caa cat aaa   ttt      31325
Gly Met Leu Glu   Ser Ala Ile Ala Ala   Leu Thr Gln His Lys   Phe
            3710                    3715                    3720

gcg atc att tac   gat atg cca ttt gtt   caa gag ggg att cgt   gtt      31370
Ala Ile Ile Tyr   Asp Met Pro Phe Val   Gln Glu Gly Ile Arg   Val
            3725                    3730                    3735

tta aca caa tat   gca gga tgg ctt ctt   ccg ttt aat gtt atg   tgg      31415
Leu Thr Gln Tyr   Ala Gly Trp Leu Leu   Pro Phe Asn Val Met   Trp
            3740                    3745                    3750

aat cag att caa   aat agc tca ctc act   cct cta aca cga gcc   ctt      31460
Asn Gln Ile Gln   Asn Ser Ser Leu Thr   Pro Leu Thr Arg Ala   Leu
            3755                    3760                    3765

ttt ata atc tgt   atg att gat gaa tat   ctc acg gaa acg cca   gta      31505
Phe Ile Ile Cys   Met Ile Asp Glu Tyr   Leu Thr Glu Thr Pro   Val
            3770                    3775                    3780

cat agc ata tca   gaa tta ttt gca gat   act gta aat tta att   aaa      31550
His Ser Ile Ser   Glu Leu Phe Ala Asp   Thr Val Asn Leu Ile   Lys
            3785                    3790                    3795

gat gag gcg ttc   gta tcc atc gaa gaa   gcg gta acg aat cca   cga      31595
Asp Glu Ala Phe   Val Ser Ile Glu Glu   Ala Val Thr Asn Pro   Arg
            3800                    3805                    3810

acg gtg cac gag   tca cga att tcc tca   gct ctg gct tat cga   gac      31640
Thr Val His Glu   Ser Arg Ile Ser Ser   Ala Leu Ala Tyr Arg   Asp
            3815                    3820                    3825

cct tat gtt ttt   gag aca tcc ccg gga   atg ctt gct agg aga   ctt      31685
Pro Tyr Val Phe   Glu Thr Ser Pro Gly   Met Leu Ala Arg Arg   Leu
            3830                    3835                    3840

aga tta gac aat   ggt ata tgg gaa agc   aac ctc tta tcg ttg   tcc      31730
Arg Leu Asp Asn   Gly Ile Trp Glu Ser   Asn Leu Leu Ser Leu   Ser
            3845                    3850                    3855

acc ccc gga att   cat att gag gcg ctg   tta cat tta cta aac   tcc      31775
Thr Pro Gly Ile   His Ile Glu Ala Leu   Leu His Leu Leu Asn   Ser
            3860                    3865                    3870
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gac ccg gaa gcg   gaa acc aca tct gga   agt aat gta gca gaa   cac       31820
Asp Pro Glu Ala   Glu Thr Thr Ser Gly   Ser Asn Val Ala Glu   His
            3875                3880                      3885

acc cgt ggc att   tgg gaa aag gtt cag   gct agt aca tcg cct   agt       31865
Thr Arg Gly Ile   Trp Glu Lys Val Gln   Ala Ser Thr Ser Pro   Ser
            3890                3895                      3900

atg tta ata agc   acc ctt gcc gaa tcc   ggg ttt aca aga ttt   tca       31910
Met Leu Ile Ser   Thr Leu Ala Glu Ser   Gly Phe Thr Arg Phe   Ser
            3905                3910                      3915

tgc aaa ttg cta   cgt cgg ttt att gct   cac cac aca ctc gcc   ggt       31955
Cys Lys Leu Leu   Arg Arg Phe Ile Ala   His His Thr Leu Ala   Gly
            3920                3925                      3930

ttt att cac gga   agc gtt gta gca gac   gag cat att aca gat   ttc       32000
Phe Ile His Gly   Ser Val Val Ala Asp   Glu His Ile Thr Asp   Phe
            3935                3940                      3945

caa caa aca cta   gga tgt ctc gct tta   gtg ggt gga ctg gca   tac       32045
Gln Gln Thr Leu   Gly Cys Leu Ala Leu   Val Gly Gly Leu Ala   Tyr
            3950                3955                      3960

caa tta gtg gaa   acg tac gct cct act   acc gag tat gtg tta   aca       32090
Gln Leu Val Glu   Thr Tyr Ala Pro Thr   Thr Glu Tyr Val Leu   Thr
            3965                3970                      3975

tat aca cgg aca   gta aac gag acc gaa   aaa cgg tat gaa acg   cta       32135
Tyr Thr Arg Thr   Val Asn Glu Thr Glu   Lys Arg Tyr Glu Thr   Leu
            3980                3985                      3990

tta ccc gcc tta   gga tta cca ccg gga   ggc ctg gga caa att   atg       32180
Leu Pro Ala Leu   Gly Leu Pro Pro Gly   Gly Leu Gly Gln Ile   Met
            3995                4000                      4005

cgg cgc tgt ttt   gct cca cga ccc ctt   att gaa agt ata caa   gcg       32225
Arg Arg Cys Phe   Ala Pro Arg Pro Leu   Ile Glu Ser Ile Gln   Ala
            4010                4015                      4020

aca cgc gta ata   cta ctt aat gaa att   tca cat gca gaa gct   aga       32270
Thr Arg Val Ile   Leu Leu Asn Glu Ile   Ser His Ala Glu Ala   Arg
            4025                4030                      4035

gag aca aca tat   ttt aag caa aca cat   aat caa tcc tca ggt   gcg       32315
Glu Thr Thr Tyr   Phe Lys Gln Thr His   Asn Gln Ser Ser Gly   Ala
            4040                4045                      4050

tta tta cca caa   gca gga caa agt gcc   gta cgc gaa gcc gta   cta       32360
Leu Leu Pro Gln   Ala Gly Gln Ser Ala   Val Arg Glu Ala Val   Leu
            4055                4060                      4065

acc tgg ttt gac   cta cgt atg gat tca   aga tgg ggt att act   ccc       32405
Thr Trp Phe Asp   Leu Arg Met Asp Ser   Arg Trp Gly Ile Thr   Pro
            4070                4075                      4080
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ccg gtg gat gtg   ggt atg aca cct cct   att tgt gtt gat cca   ccg      32450
Pro Val Asp Val   Gly Met Thr Pro Pro   Ile Cys Val Asp Pro   Pro
            4085                  4090                  4095

gct aca ggg ttg   gaa gct gtc atg ata   aca gaa gca cta aag   att      32495
Ala Thr Gly Leu   Glu Ala Val Met Ile   Thr Glu Ala Leu Lys   Ile
            4100                  4105                  4110

gca tat cct acc   gaa tat aat cgc tct   agc gtg ttt gtg gaa   ccg      32540
Ala Tyr Pro Thr   Glu Tyr Asn Arg Ser   Ser Val Phe Val Glu   Pro
            4115                  4120                  4125

tcg ttt gtg cct   tat att att gca aca   agc acg ctt gat gcc   ctt      32585
Ser Phe Val Pro   Tyr Ile Ile Ala Thr   Ser Thr Leu Asp Ala   Leu
            4130                  4135                  4140

tcg gca aca ata   gct ttg tct ttt gat   aca cgg gga ata cag   caa      32630
Ser Ala Thr Ile   Ala Leu Ser Phe Asp   Thr Arg Gly Ile Gln   Gln
            4145                  4150                  4155

gcc ttg tct att   ctt cag tgg gct cgc   gat tat gga tcc gga   acc      32675
Ala Leu Ser Ile   Leu Gln Trp Ala Arg   Asp Tyr Gly Ser Gly   Thr
            4160                  4165                  4170

gtg ccc aat gca   gat gga tat cgc aca   aaa cta tct gct ctt   ata      32720
Val Pro Asn Ala   Asp Gly Tyr Arg Thr   Lys Leu Ser Ala Leu   Ile
            4175                  4180                  4185

aca ata tta gaa   cct ttt acc cgt aca   cac ccc cca gta ctt   tta      32765
Thr Ile Leu Glu   Pro Phe Thr Arg Thr   His Pro Pro Val Leu   Leu
            4190                  4195                  4200

cca tct cac gtt   tct act ata gat tcc   ctt ata tgc gaa ctt   cat      32810
Pro Ser His Val   Ser Thr Ile Asp Ser   Leu Ile Cys Glu Leu   His
            4205                  4210                  4215

cgg act gtt ggc   att gcc gtt gac ctg   ctt ccc cag cac gtc   cgt      32855
Arg Thr Val Gly   Ile Ala Val Asp Leu   Leu Pro Gln His Val   Arg
            4220                  4225                  4230

cct ttg gtt cct   gac cgt cct tct att   aca aat agc gtt ttt   tta      32900
Pro Leu Val Pro   Asp Arg Pro Ser Ile   Thr Asn Ser Val Phe   Leu
            4235                  4240                  4245

gca act ctc tat   tat gat gaa ctt tac   ggt cgt tgg acc cga   ctg      32945
Ala Thr Leu Tyr   Tyr Asp Glu Leu Tyr   Gly Arg Trp Thr Arg   Leu
            4250                  4255                  4260

gat aaa aca tcg   cag gcg ttg gtt gaa   aat ttt aca tcc aac   gcg      32990
Asp Lys Thr Ser   Gln Ala Leu Val Glu   Asn Phe Thr Ser Asn   Ala
            4265                  4270                  4275

tta gtg gtt tct   cgg tac atg tta atg   tta caa aaa ttt ttt   gcg      33035
Leu Val Val Ser   Arg Tyr Met Leu Met   Leu Gln Lys Phe Phe   Ala
            4280                  4285                  4290

tgt cgt ttt tat   cca acg cca gat ctt   cag gct gtt ggt atc   tgt      33080
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Cys Arg Phe Tyr  Pro Thr Pro Asp Leu  Gln Ala Val Gly Ile  Cys
        4295              4300              4305

aac cca aag gtt  gaa cgc gat gaa caa  ttt ggg gta tgg cgt  tta      33125
Asn Pro Lys Val  Glu Arg Asp Glu Gln  Phe Gly Val Trp Arg  Leu
        4310              4315              4320

aac gat ctt gct  gat gcg gtt ggt cat  att gtt ggg aca ata  caa      33170
Asn Asp Leu Ala  Asp Ala Val Gly His  Ile Val Gly Thr Ile  Gln
        4325              4330              4335

gga atc cga acg  caa atg aga gtg gga  ata tcc agc ctg cgc  aca      33215
Gly Ile Arg Thr  Gln Met Arg Val Gly  Ile Ser Ser Leu Arg  Thr
        4340              4345              4350

att atg gcc gat  gct tcc tca gcc ctt  agg gaa tgt gaa aat  tta      33260
Ile Met Ala Asp  Ala Ser Ser Ala Leu  Arg Glu Cys Glu Asn  Leu
        4355              4360              4365

atg act aaa acc  tcc act tct gct att  ggg cct ctt ttt tca  acg      33305
Met Thr Lys Thr  Ser Thr Ser Ala Ile  Gly Pro Leu Phe Ser  Thr
        4370              4375              4380

atg gct tcc cgg  tat gca cgg ttt aca  cag gat caa atg gac  att      33350
Met Ala Ser Arg  Tyr Ala Arg Phe Thr  Gln Asp Gln Met Asp  Ile
        4385              4390              4395

tta atg cgt gtt  gac aaa cta aca aca  gga gaa aat ata ccc  ggt      33395
Leu Met Arg Val  Asp Lys Leu Thr Thr  Gly Glu Asn Ile Pro  Gly
        4400              4405              4410

ctt gca aat gta  gag att ttt tta aat  agg tgg gaa cga ata  gca      33440
Leu Ala Asn Val  Glu Ile Phe Leu Asn  Arg Trp Glu Arg Ile  Ala
        4415              4420              4425

aca gct tgt agg  cat gcc acg gca gtc  ccg tcg gcc gaa tct  att      33485
Thr Ala Cys Arg  His Ala Thr Ala Val  Pro Ser Ala Glu Ser  Ile
        4430              4435              4440

gca acc gtg tgt  aat gaa ttg agg cgc  ggt tta aaa aat ata  caa      33530
Ala Thr Val Cys  Asn Glu Leu Arg Arg  Gly Leu Lys Asn Ile  Gln
        4445              4450              4455

gag gat cgt gta  aat gcc cca acc tca  tat atg agt cac gcc  cga      33575
Glu Asp Arg Val  Asn Ala Pro Thr Ser  Tyr Met Ser His Ala  Arg
        4460              4465              4470

aat ctg gaa gat  cac aag gca gca gtt  tca ttc gtt atg gac  tcc      33620
Asn Leu Glu Asp  His Lys Ala Ala Val  Ser Phe Val Met Asp  Ser
        4475              4480              4485

agg caa cag ttt  att gtg gat tct gga  cct cag atg ggc gcg  gtt      33665
Arg Gln Gln Phe  Ile Val Asp Ser Gly  Pro Gln Met Gly Ala  Val
        4490              4495              4500

tta act tca caa  tgt aat ata gga aca  tgg gag aat gta aat  gca      33710
Leu Thr Ser Gln  Cys Asn Ile Gly Thr  Trp Glu Asn Val Asn  Ala
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55

acg ttt tta cat gat aat gtt aaa ata acg aca acg gtc aga gac   33755
Thr Phe Leu His Asp Asn Val Lys Ile Thr Thr Thr Val Arg Asp
            4520   4525   4530

gta att tca gag gct ccg acg ctg ata ata gga caa aga tgg ctt   33800
Val Ile Ser Glu Ala Pro Thr Leu Ile Ile Gly Gln Arg Trp Leu
            4535   4540   4545

cgt cca gat gag att tta tct aat gta gat ttg cgt ctt ggc gta   33845
Arg Pro Asp Glu Ile Leu Ser Asn Val Asp Leu Arg Leu Gly Val
            4550   4555   4560

ccc ggg aat aca agt ggg agt gac cct taa tataaaacag gcgtgtttat   33895
Pro Gly Asn Thr Ser Gly Ser Asp Pro
            4565   4570

gtacattaaa gtatttgtgg tttttattga ctgggcgttt cgtttgtata acgctgttgt   33955

tgctagtatt ttcataacct cctaggtttt tggagctaca cgtgcttatt caacgctctt   34015

tgggatttga atcatcgtaa acgtagcgtc cctaccagtt gagcgcgtaa ttttcgtaag   34075

caataaa atg gat ata att ccg cct ata gct gtc act gtt gcg gga gtg   34124
        Met Asp Ile Ile Pro Pro Ile Ala Val Thr Val Ala Gly Val
                    4575   4580

gga agc cgt aat caa ttt gac ggt gcc ctg gga ccg gcg tca ggt   34169
Gly Ser Arg Asn Gln Phe Asp Gly Ala Leu Gly Pro Ala Ser Gly
4585   4590   4595

ctg tca tgt tta aga aca tct tta tcg ttt ttg cat atg aca tat   34214
Leu Ser Cys Leu Arg Thr Ser Leu Ser Phe Leu His Met Thr Tyr
4600   4605   4610

gcg cat gga att aat gca acc ctg tca tca gac atg att gat gga   34259
Ala His Gly Ile Asn Ala Thr Leu Ser Ser Asp Met Ile Asp Gly
4615   4620   4625

tgt tta caa gag ggt gca gca tgg act acg gat ctg tct aat atg   34304
Cys Leu Gln Glu Gly Ala Ala Trp Thr Thr Asp Leu Ser Asn Met
4630   4635   4640

ggg agg ggt gtc cca gat atg tgt gct ctt gtt gat ctc ccc aat   34349
Gly Arg Gly Val Pro Asp Met Cys Ala Leu Val Asp Leu Pro Asn
4645   4650   4655

cga att tca tat att aaa ctg ggg gac act acc agt acg tgc tgc   34394
Arg Ile Ser Tyr Ile Lys Leu Gly Asp Thr Thr Ser Thr Cys Cys
4660   4665   4670

gtt ttg tct aga ata tac ggc gat agc cat ttt ttt acc gtt cca   34439
Val Leu Ser Arg Ile Tyr Gly Asp Ser His Phe Phe Thr Val Pro
4675   4680   4685

gac gag ggt ttt atg tgc aca caa att ccc gct aga gcg ttt ttc   34484

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Asp  Glu Gly Phe Met Cys  Thr Gln Ile Pro Ala  Arg Ala Phe Phe
4690                 4695              4700

gat  gat gtg tgg atg gga  cgt gaa gag tcg tat  aca att ata act    34529
Asp  Asp Val Trp Met Gly  Arg Glu Glu Ser Tyr  Thr Ile Ile Thr
4705                 4710              4715

gta  gac tca acg gga atg  gcc atc tat cgt cag  gga aac ata tct    34574
Val  Asp Ser Thr Gly Met  Ala Ile Tyr Arg Gln  Gly Asn Ile Ser
4720                 4725              4730

ttt  att ttt gat cca cat  ggc cat ggg act ata  gga cag gct gta    34619
Phe  Ile Phe Asp Pro His  Gly His Gly Thr Ile  Gly Gln Ala Val
4735                 4740              4745

gtt  gtt cgg gtg aat acc  acg gat gtg tac tct  tat atc gca tcg    34664
Val  Val Arg Val Asn Thr  Thr Asp Val Tyr Ser  Tyr Ile Ala Ser
4750                 4755              4760

gag  tat acc cac cgc ccc  gat aac gta gaa tcc  caa tgg gcc gct    34709
Glu  Tyr Thr His Arg Pro  Asp Asn Val Glu Ser  Gln Trp Ala Ala
4765                 4770              4775

gca  tta gtt ttt ttt gtc  acc gca aac gac ggt  ccc gta agc gaa    34754
Ala  Leu Val Phe Phe Val  Thr Ala Asn Asp Gly  Pro Val Ser Glu
4780                 4785              4790

gaa  gcg cta tct tcg gca  gta acg ctt ata tac  gga agc tgt gat    34799
Glu  Ala Leu Ser Ser Ala  Val Thr Leu Ile Tyr  Gly Ser Cys Asp
4795                 4800              4805

aca  tat ttt aca gat gaa  caa tat tgc gaa aaa  ctg gtt aca gct    34844
Thr  Tyr Phe Thr Asp Glu  Gln Tyr Cys Glu Lys  Leu Val Thr Ala
4810                 4815              4820

caa  cat ccg ttg ctt ctt  tca cct cct aat tcc  acg aca att gtg    34889
Gln  His Pro Leu Leu Leu  Ser Pro Pro Asn Ser  Thr Thr Ile Val
4825                 4830              4835

ctt  aat aaa tcg tct ata  gta cct ctt cac caa  aac gtt ggt gaa    34934
Leu  Asn Lys Ser Ser Ile  Val Pro Leu His Gln  Asn Val Gly Glu
4840                 4845              4850

agt  gta tcc ttg gaa gca  acc cta cat tca acg  tta acc aac acg    34979
Ser  Val Ser Leu Glu Ala  Thr Leu His Ser Thr  Leu Thr Asn Thr
4855                 4860              4865

gtt  gca ctg gac cct aga  tgt agt tac agc gag  gtt gat cct tgg    35024
Val  Ala Leu Asp Pro Arg  Cys Ser Tyr Ser Glu  Val Asp Pro Trp
4870                 4875              4880

cat  gcg gtt cta gaa aca  acc tcg act ggg tct  ggc gtt ttg gat    35069
His  Ala Val Leu Glu Thr  Thr Ser Thr Gly Ser  Gly Val Leu Asp
4885                 4890              4895

tgt  cgt cgt aga cgc cgt  cct tca tgg act cct  cct tca agc gag    35114
Cys  Arg Arg Arg Arg Arg  Pro Ser Trp Thr Pro  Pro Ser Ser Glu
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4900                    4905                    4910

gaa aat tta gct tgt atc  gac gat ggc ttg gta  aat aat aca cat    35159
Glu Asn Leu Ala Cys Ile  Asp Asp Gly Leu Val  Asn Asn Thr His
4915                4920                4925

tcc acg gat aat tta cat  aaa ccc gct aaa aag  gtt ctc aaa ttt    35204
Ser Thr Asp Asn Leu His  Lys Pro Ala Lys Lys  Val Leu Lys Phe
4930                4935                4940

aaa cca act gta gac gtg  ccg gat aaa aca caa  gtg gca cat gta    35249
Lys Pro Thr Val Asp Val  Pro Asp Lys Thr Gln  Val Ala His Val
4945                4950                4955

tta ccc cgc cta cga gaa  gtt gct aac acc cca  gac gtt gtg tta    35294
Leu Pro Arg Leu Arg Glu  Val Ala Asn Thr Pro  Asp Val Val Leu
4960                4965                4970

aat gta tcc aat gta gat  acg cct gaa tcc agt  ccc act ttt tca    35339
Asn Val Ser Asn Val Asp  Thr Pro Glu Ser Ser  Pro Thr Phe Ser
4975                4980                4985

cgg aac atg aat gta gga  agc agt ttg aaa gat  cgg aag cca ttt    35384
Arg Asn Met Asn Val Gly  Ser Ser Leu Lys Asp  Arg Lys Pro Phe
4990                4995                5000

cta ttt gaa cag agt ggt  gat gtc aac atg gtt  gtc gaa aaa cta    35429
Leu Phe Glu Gln Ser Gly  Asp Val Asn Met Val  Val Glu Lys Leu
5005                5010                5015

cta caa cat ggg cat gaa  att agc aat gga tac  gta caa aat gcg    35474
Leu Gln His Gly His Glu  Ile Ser Asn Gly Tyr  Val Gln Asn Ala
5020                5025                5030

gtg ggt acg ttg gat act  gtt att acc ggt cat  aca aat gtt ccc    35519
Val Gly Thr Leu Asp Thr  Val Ile Thr Gly His  Thr Asn Val Pro
5035                5040                5045

att tgg gta aca agg ccc  ttg gtt atg cca gac  gaa aag gat cca    35564
Ile Trp Val Thr Arg Pro  Leu Val Met Pro Asp  Glu Lys Asp Pro
5050                5055                5060

ttg gag ctt ttt att aac  ctc acc att ttg cgt  tta acg gga ttt    35609
Leu Glu Leu Phe Ile Asn  Leu Thr Ile Leu Arg  Leu Thr Gly Phe
5065                5070                5075

gtg gtg gaa aat gga aca  cgt aca cat cat ggt  gct aca agc gtt    35654
Val Val Glu Asn Gly Thr  Arg Thr His His Gly  Ala Thr Ser Val
5080                5085                5090

gta tca gac ttt ata ggt  ccc ctt ggg gaa att  tta aca gga ttt    35699
Val Ser Asp Phe Ile Gly  Pro Leu Gly Glu Ile  Leu Thr Gly Phe
5095                5100                5105

ccc tcc gcc gcg gaa ctt  ata cgc gtt aca agt  ttg ata tta aca    35744
Pro Ser Ala Ala Glu Leu  Ile Arg Val Thr Ser  Leu Ile Leu Thr
5110                5115                5120
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aac atg ccg ggg gcg gaa  tat gct att aaa act  gtt ctc cgg aaa      35789
Asn Met Pro Gly Ala Glu  Tyr Ala Ile Lys Thr  Val Leu Arg Lys
5125                5130                5135

aaa tgt aca att ggc atg  ctc att atc gct aag  ttt ggt cta gtt      35834
Lys Cys Thr Ile Gly Met  Leu Ile Ile Ala Lys  Phe Gly Leu Val
5140                5145                5150

gcc atg cgg gtt cag gat  aca acc ggc gct tta  cat gcc gaa cta      35879
Ala Met Arg Val Gln Asp  Thr Thr Gly Ala Leu  His Ala Glu Leu
5155                5160                5165

gat gtg tta gaa gcg gat  cta gga ggt tcg tcg  ccc ata gac ctc      35924
Asp Val Leu Glu Ala Asp  Leu Gly Gly Ser Ser  Pro Ile Asp Leu
5170                5175                5180

tat tct aga ctg tcg aca  ggt ctt ata agt ata  cta aat tcg cct      35969
Tyr Ser Arg Leu Ser Thr  Gly Leu Ile Ser Ile  Leu Asn Ser Pro
5185                5190                5195

att att tct cat ccc gga  ctt ttt gcc gag ctt  att cca acc cgt      36014
Ile Ile Ser His Pro Gly  Leu Phe Ala Glu Leu  Ile Pro Thr Arg
5200                5205                5210

aca ggg tcc ctg tct gaa  cga ata cgt ctt ctt  tgt gaa tta gtc      36059
Thr Gly Ser Leu Ser Glu  Arg Ile Arg Leu Leu  Cys Glu Leu Val
5215                5220                5225

tcg gcc cgg gag aca cgc  tat atg cgt gaa cac  acc gcg ctt gtt      36104
Ser Ala Arg Glu Thr Arg  Tyr Met Arg Glu His  Thr Ala Leu Val
5230                5235                5240

tct agt gta aag gct tta  gag aat gca tta cgg  tct acc cgc aat      36149
Ser Ser Val Lys Ala Leu  Glu Asn Ala Leu Arg  Ser Thr Arg Asn
5245                5250                5255

aaa att gat gcc att caa  ata cca gaa gtt ccc  cag gaa ccc ccg      36194
Lys Ile Asp Ala Ile Gln  Ile Pro Glu Val Pro  Gln Glu Pro Pro
5260                5265                5270

gaa gaa acc gac att cca  ccc gaa gag tta att  cgg cgt gta tat      36239
Glu Glu Thr Asp Ile Pro  Pro Glu Glu Leu Ile  Arg Arg Val Tyr
5275                5280                5285

gag ata cga tcc gaa gtt  aca atg cta ttg acc  tcg gct gtt aca      36284
Glu Ile Arg Ser Glu Val  Thr Met Leu Leu Thr  Ser Ala Val Thr
5290                5295                5300

gaa tac ttc acc cgc gga  gtg tta tat agc aca  cgg gcc ttg atc      36329
Glu Tyr Phe Thr Arg Gly  Val Leu Tyr Ser Thr  Arg Ala Leu Ile
5305                5310                5315

gct gaa caa tcc cct agg  cgt ttt cgg gtc gcg  acc gca agt acg      36374
Ala Glu Gln Ser Pro Arg  Arg Phe Arg Val Ala  Thr Ala Ser Thr
5320                5325                5330
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gca ccc att caa cgg ctt  tta gat tct ctt ccg  gaa ttc gac gct      36419
Ala Pro Ile Gln Arg Leu  Leu Asp Ser Leu Pro  Glu Phe Asp Ala
5335             5340              5345

aaa tta acg gca atc ata  tcg tcc ctg tct ata  cac cct cct cct      36464
Lys Leu Thr Ala Ile Ile  Ser Ser Leu Ser Ile  His Pro Pro Pro
5350             5355              5360

gag act ata caa aat ctc  ccc gtc gta tct ctg  tta aaa gag ctt      36509
Glu Thr Ile Gln Asn Leu  Pro Val Val Ser Leu  Leu Lys Glu Leu
5365             5370              5375

att aaa gaa ggg gaa gat  tta aac aca gac acg  gct ctc gta tcg      36554
Ile Lys Glu Gly Glu Asp  Leu Asn Thr Asp Thr  Ala Leu Val Ser
5380             5385              5390

tgg tta tct gta gtc ggg  gaa gct caa acc gca  ggt tac tta tcc      36599
Trp Leu Ser Val Val Gly  Glu Ala Gln Thr Ala  Gly Tyr Leu Ser
5395             5400              5405

aga cga gag ttc gat gaa  tta tca cgt aca att  aaa acc att aat      36644
Arg Arg Glu Phe Asp Glu  Leu Ser Arg Thr Ile  Lys Thr Ile Asn
5410             5415              5420

aca cgc gca acg caa cgg  gct tcc gcg gaa gca  gag ttg tct tgc      36689
Thr Arg Ala Thr Gln Arg  Ala Ser Ala Glu Ala  Glu Leu Ser Cys
5425             5430              5435

ttt aat acg cta agc gcg  gcc gta gac caa gcc  gta aag gac tat      36734
Phe Asn Thr Leu Ser Ala  Ala Val Asp Gln Ala  Val Lys Asp Tyr
5440             5445              5450

gaa aca tat aac aat ggt  gag gtc aag tat cct  gaa ata aca cgg      36779
Glu Thr Tyr Asn Asn Gly  Glu Val Lys Tyr Pro  Glu Ile Thr Arg
5455             5460              5465

gat gat tta tta gca aca  att gta cgt gct aca  gac gat ttg gtg      36824
Asp Asp Leu Leu Ala Thr  Ile Val Arg Ala Thr  Asp Asp Leu Val
5470             5475              5480

cga cag ata aaa att tta  agt gat cca atg atc  caa tcc ggt tta      36869
Arg Gln Ile Lys Ile Leu  Ser Asp Pro Met Ile  Gln Ser Gly Leu
5485             5490              5495

caa cct tcg att aaa aga  cga ttg gaa aca agg  ctt aaa gag gtt      36914
Gln Pro Ser Ile Lys Arg  Arg Leu Glu Thr Arg  Leu Lys Glu Val
5500             5505              5510

cag acg tat gca aac gag  gcc cga acc aca cag  gac aca ata aag      36959
Gln Thr Tyr Ala Asn Glu  Ala Arg Thr Thr Gln  Asp Thr Ile Lys
5515             5520              5525

agt cga aaa cag gcg gca  tat aat aaa ctc ggg  ggg tta ctt cgc      37004
Ser Arg Lys Gln Ala Ala  Tyr Asn Lys Leu Gly  Gly Leu Leu Arg
5530             5535              5540

ccg gta acc ggt ttt gtg  gga ctt agg gct gca  gta gat tta tta      37049
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Pro Val Thr Gly Phe Val  Gly Leu Arg Ala Ala  Val Asp Leu Leu
5545                5550                5555

ccg gaa ctt gct tct gag  tta gat gtc caa gga  gcc ctg gta aat     37094
Pro Glu Leu Ala Ser Glu  Leu Asp Val Gln Gly  Ala Leu Val Asn
5560                5565                5570

ctc agg acc aaa gtc tta  gag gcg ccg gta gag  atc cgt tct caa     37139
Leu Arg Thr Lys Val Leu  Glu Ala Pro Val Glu  Ile Arg Ser Gln
5575                5580                5585

ctt acg ggt gat ttc tgg  gcg tta ttt aac caa  tat cga gac att     37184
Leu Thr Gly Asp Phe Trp  Ala Leu Phe Asn Gln  Tyr Arg Asp Ile
5590                5595                5600

tta gaa cat ccc gga aac  gca cgc aca tct gtc  tta gga gga ctg     37229
Leu Glu His Pro Gly Asn  Ala Arg Thr Ser Val  Leu Gly Gly Leu
5605                5610                5615

gga gct tgt ttt aca gct  att atc gaa att gtg  ccg ata cct acg     37274
Gly Ala Cys Phe Thr Ala  Ile Ile Glu Ile Val  Pro Ile Pro Thr
5620                5625                5630

gag tat aga cca tca ttg  ctt gcg ttt ttt ggt  gac gtg gca gat     37319
Glu Tyr Arg Pro Ser Leu  Leu Ala Phe Phe Gly  Asp Val Ala Asp
5635                5640                5645

gtg ctt gca tcc gac atc  gcg acc gta tct act  aac ccg gaa agt     37364
Val Leu Ala Ser Asp Ile  Ala Thr Val Ser Thr  Asn Pro Glu Ser
5650                5655                5660

gag tcc gcc ata aac gct  gtt gtt gca act ctt  agt aaa gcg acg     37409
Glu Ser Ala Ile Asn Ala  Val Val Ala Thr Leu  Ser Lys Ala Thr
5665                5670                5675

tta gtt tca tct aca gtg  cca gcc tta tcc ttt  gtg ttg tcg tta     37454
Leu Val Ser Ser Thr Val  Pro Ala Leu Ser Phe  Val Leu Ser Leu
5680                5685                5690

tat aaa aaa tat cag gct  tta caa caa gaa att  acg aat acc cat     37499
Tyr Lys Lys Tyr Gln Ala  Leu Gln Gln Glu Ile  Thr Asn Thr His
5695                5700                5705

aag ttg act gaa tta caa  aaa caa ctt gga gat  gac ttc tcc acc     37544
Lys Leu Thr Glu Leu Gln  Lys Gln Leu Gly Asp  Asp Phe Ser Thr
5710                5715                5720

cta gct gtc tca tct gga  cac ttg aag ttt ata  tca tct tca aat     37589
Leu Ala Val Ser Ser Gly  His Leu Lys Phe Ile  Ser Ser Ser Asn
5725                5730                5735

gta gat gat tat gaa ata  aac gat gcg ata tta  tca ata caa aca     37634
Val Asp Asp Tyr Glu Ile  Asn Asp Ala Ile Leu  Ser Ile Gln Thr
5740                5745                5750

aat gtg cac gcc cta atg  gat acg gtt aaa ctt  gtt gaa gtt gaa     37679
Asn Val His Ala Leu Met  Asp Thr Val Lys Leu  Val Glu Val Glu
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ctg caa aag cta ccc ccc  cat tgt att gct ggg  aca tct acc tta        37724
Leu Gln Lys Leu Pro Pro  His Cys Ile Ala Gly  Thr Ser Thr Leu
5770            5775                5780

tct cga gta gta aag gat  ctt cat aaa ctc gtc  aca atg gca cat        37769
Ser Arg Val Val Lys Asp  Leu His Lys Leu Val  Thr Met Ala His
5785            5790                5795

gag aag aag gaa cag gca  aaa gtg tta att acc  gat tgt gaa cgt        37814
Glu Lys Lys Glu Gln Ala  Lys Val Leu Ile Thr  Asp Cys Glu Arg
5800            5805                5810

gca cat aaa caa caa acg  act cgg gtt ttg tat  gag cgt tgg aca        37859
Ala His Lys Gln Gln Thr  Thr Arg Val Leu Tyr  Glu Arg Trp Thr
5815            5820                5825

cgt gat att ata gca tgt  ctg gag gca atg gaa  acg cgc cat ata        37904
Arg Asp Ile Ile Ala Cys  Leu Glu Ala Met Glu  Thr Arg His Ile
5830            5835                5840

ttt aac ggg aca gaa ctg  gca cgg ttg cga gat  atg gcc gct gcg        37949
Phe Asn Gly Thr Glu Leu  Ala Arg Leu Arg Asp  Met Ala Ala Ala
5845            5850                5855

gga ggg ttt gat ata cac  gca gtt tac cca caa  gca cgt cag gtt        37994
Gly Gly Phe Asp Ile His  Ala Val Tyr Pro Gln  Ala Arg Gln Val
5860            5865                5870

gta gcg gca tgt gaa act  aca gcc gtt acg gca  tta gat act gtg        38039
Val Ala Ala Cys Glu Thr  Thr Ala Val Thr Ala  Leu Asp Thr Val
5875            5880                5885

ttt cgc cac aat cca tat  acc ccc gaa aat aca  aat att cca cca        38084
Phe Arg His Asn Pro Tyr  Thr Pro Glu Asn Thr  Asn Ile Pro Pro
5890            5895                5900

cct ttg gct ttg tta aga  ggg tta aca tgg ttt  gat gat ttt tcg        38129
Pro Leu Ala Leu Leu Arg  Gly Leu Thr Trp Phe  Asp Asp Phe Ser
5905            5910                5915

att acg gct ccc gta ttc  acc gtt atg ttt cca  ggt gtt agt att        38174
Ile Thr Ala Pro Val Phe  Thr Val Met Phe Pro  Gly Val Ser Ile
5920            5925                5930

gag gga ctc ctt ctg ctt  atg cgt att cgc gcg  gtt gtg tta tta        38219
Glu Gly Leu Leu Leu Leu  Met Arg Ile Arg Ala  Val Val Leu Leu
5935            5940                5945

tcc gcc gat acg tct att  aat gga ata cct aac  tac cga gat atg        38264
Ser Ala Asp Thr Ser Ile  Asn Gly Ile Pro Asn  Tyr Arg Asp Met
5950            5955                5960

ata tta cga acc tcg ggg  gat cta tta caa ata  ccc gca ttg gct        38309
Ile Leu Arg Thr Ser Gly  Asp Leu Leu Gln Ile  Pro Ala Leu Ala
5965            5970                5975
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ggg  tat gtt gat ttt tac  aca cgg tct tat gat  cag ttt ata acc     38354
Gly  Tyr Val Asp Phe Tyr  Thr Arg Ser Tyr Asp  Gln Phe Ile Thr
5980               5985              5990

gaa  agt gta acg tta agt  gaa ctt aga gca gac  atc aga cag gct     38399
Glu  Ser Val Thr Leu Ser  Glu Leu Arg Ala Asp  Ile Arg Gln Ala
5995               6000              6005

gcc  ggg gct aaa ctt aca  gaa gca aat aag gct  ttg gag gaa gta     38444
Ala  Gly Ala Lys Leu Thr  Glu Ala Asn Lys Ala  Leu Glu Glu Val
6010               6015              6020

act  cat gtt cgg gca cac  gaa acg gct aaa ctt  gca ctt aaa gaa     38489
Thr  His Val Arg Ala His  Glu Thr Ala Lys Leu  Ala Leu Lys Glu
6025               6030              6035

ggt  gtc ttc att aca tta  cca agc gaa ggt tta  ttg att cgg gct     38534
Gly  Val Phe Ile Thr Leu  Pro Ser Glu Gly Leu  Leu Ile Arg Ala
6040               6045              6050

ata  gag tat ttt aca act  ttc gat cat aaa cga  ttt ata gga acg     38579
Ile  Glu Tyr Phe Thr Thr  Phe Asp His Lys Arg  Phe Ile Gly Thr
6055               6060              6065

gca  tat gaa aga gtt tta  caa aca atg gta gac  cgc gat cta aag     38624
Ala  Tyr Glu Arg Val Leu  Gln Thr Met Val Asp  Arg Asp Leu Lys
6070               6075              6080

gag  gcc aac gca gag ctt  gca cag ttt cgt atg  gtg tgt cag gca     38669
Glu  Ala Asn Ala Glu Leu  Ala Gln Phe Arg Met  Val Cys Gln Ala
6085               6090              6095

aca  aag aac cgt gca ata  caa att tta caa aac  att gtt gat acg     38714
Thr  Lys Asn Arg Ala Ile  Gln Ile Leu Gln Asn  Ile Val Asp Thr
6100               6105              6110

gcc  aat gcc act gag caa  caa gaa gac gtg gat  ttc act aac ctg     38759
Ala  Asn Ala Thr Glu Gln  Gln Glu Asp Val Asp  Phe Thr Asn Leu
6115               6120              6125

aag  acg tta tta aaa cta  acc ccc cct ccc aaa  aca att gca ttg     38804
Lys  Thr Leu Leu Lys Leu  Thr Pro Pro Pro Lys  Thr Ile Ala Leu
6130               6135              6140

gcc  att gat aga tct act  tcc gtt cag gac att  gtc acg cag ttt     38849
Ala  Ile Asp Arg Ser Thr  Ser Val Gln Asp Ile  Val Thr Gln Phe
6145               6150              6155

gca  ttg ctg tta ggg cgt  ctg gaa gaa gaa act  ggt acg ttg gac     38894
Ala  Leu Leu Leu Gly Arg  Leu Glu Glu Glu Thr  Gly Thr Leu Asp
6160               6165              6170

att  cag gcg gtt gac tgg  atg tac caa gct cgc  aat att att gac     38939
Ile  Gln Ala Val Asp Trp  Met Tyr Gln Ala Arg  Asn Ile Ile Asp
6175               6180              6185
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tcc cat cca cta agt gtg  cgt ata gac ggt acc  ggc ccc ctg cat      38984
Ser His Pro Leu Ser Val  Arg Ile Asp Gly Thr  Gly Pro Leu His
6190            6195            6200

act tat aaa gat agg gtg  gat aaa ctt tat gcg  tta cga act aaa      39029
Thr Tyr Lys Asp Arg Val  Asp Lys Leu Tyr Ala  Leu Arg Thr Lys
6205            6210            6215

tta gat ctc cta cga cga  cga ata gaa acc ggt  gag gtt acg tgg      39074
Leu Asp Leu Leu Arg Arg  Arg Ile Glu Thr Gly  Glu Val Thr Trp
6220            6225            6230

gac gat gca tgg aca aca  ttt aaa aga gaa acg  ggg gat atg ttg      39119
Asp Asp Ala Trp Thr Thr  Phe Lys Arg Glu Thr  Gly Asp Met Leu
6235            6240            6245

gca tcg ggg gac acg tac  gct act tcc gta gat  agt ata aag gca      39164
Ala Ser Gly Asp Thr Tyr  Ala Thr Ser Val Asp  Ser Ile Lys Ala
6250            6255            6260

ctc cag gca tcg gcg tct  gtg gtt gac atg ctt  tgt tcc gaa ccc      39209
Leu Gln Ala Ser Ala Ser  Val Val Asp Met Leu  Cys Ser Glu Pro
6265            6270            6275

gaa ttt ttt tta ttg cct  gtg gaa acg aaa aac  cgt ctc caa aaa      39254
Glu Phe Phe Leu Leu Pro  Val Glu Thr Lys Asn  Arg Leu Gln Lys
6280            6285            6290

aag caa cag gaa cgt aaa  acg gcg ttg gat gtt  gtg ttg caa aaa      39299
Lys Gln Gln Glu Arg Lys  Thr Ala Leu Asp Val  Val Leu Gln Lys
6295            6300            6305

caa aga cag ttt gaa gag  acc gcg tct cgc tta  cga gct tta att      39344
Gln Arg Gln Phe Glu Glu  Thr Ala Ser Arg Leu  Arg Ala Leu Ile
6310            6315            6320

gaa cgt att cca acg gag  agt gac cat gac gtt  ctt cgt atg tta      39389
Glu Arg Ile Pro Thr Glu  Ser Asp His Asp Val  Leu Arg Met Leu
6325            6330            6335

tta cgt gat ttc gat caa  ttt aca cat ttg cct  ata tgg ata aaa      39434
Leu Arg Asp Phe Asp Gln  Phe Thr His Leu Pro  Ile Trp Ile Lys
6340            6345            6350

aca cag tat atg aca ttt  cga aat tta ctc atg  gta cgg tta ggc      39479
Thr Gln Tyr Met Thr Phe  Arg Asn Leu Leu Met  Val Arg Leu Gly
6355            6360            6365

ttg tat gca agt tat gct  gag att ttt cca ccc  gcg tct cca aac      39524
Leu Tyr Ala Ser Tyr Ala  Glu Ile Phe Pro Pro  Ala Ser Pro Asn
6370            6375            6380

gga gta ttt gct cct att  ccc gcc atg tcg ggt  gta tgt cta gaa      39569
Gly Val Phe Ala Pro Ile  Pro Ala Met Ser Gly  Val Cys Leu Glu
6385            6390            6395

gac caa tcc cga tgc att  cgc gcg cgg gtg gcc  gcg ttt atg ggg      39614
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64

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    Asp  Gln  Ser  Arg  Cys  Ile  Arg  Ala  Arg  Val  Ala  Ala  Phe  Met  Gly
    6400                6405                6410

gag  gcg  tct  gtg  gtg  caa  acg  ttt  agg  gaa  gcc  aga  tct  tct  ata        39659
Glu  Ala  Ser  Val  Val  Gln  Thr  Phe  Arg  Glu  Ala  Arg  Ser  Ser  Ile
6415                6420                6425

gac  gct  ttg  ttt  gga  aaa  aat  tta  acc  ttt  tac  ttg  gat  act  gat        39704
Asp  Ala  Leu  Phe  Gly  Lys  Asn  Leu  Thr  Phe  Tyr  Leu  Asp  Thr  Asp
6430                6435                6440

ggg  gtt  cca  ctt  cga  tat  aga  gtg  tgt  tat  aaa  tca  gtt  ggg  gtt        39749
Gly  Val  Pro  Leu  Arg  Tyr  Arg  Val  Cys  Tyr  Lys  Ser  Val  Gly  Val
6445                6450                6455

aaa  ctt  gga  acc  atg  cta  tgc  agt  cag  ggt  gga  tta  tct  tta  cga        39794
Lys  Leu  Gly  Thr  Met  Leu  Cys  Ser  Gln  Gly  Gly  Leu  Ser  Leu  Arg
6460                6465                6470

ccg  gca  ctt  ccc  gat  gaa  ggt  att  gtg  gaa  gaa  act  aca  cta  tcg        39839
Pro  Ala  Leu  Pro  Asp  Glu  Gly  Ile  Val  Glu  Glu  Thr  Thr  Leu  Ser
6475                6480                6485

gca  tta  cgc  gtg  gcc  aat  gag  gtc  aat  gag  cta  cgc  att  gaa  tac        39884
Ala  Leu  Arg  Val  Ala  Asn  Glu  Val  Asn  Glu  Leu  Arg  Ile  Glu  Tyr
6490                6495                6500

gaa  tcc  gct  ata  aaa  tcc  ggg  ttt  tct  gcc  ttt  tcc  acc  ttt  gtt        39929
Glu  Ser  Ala  Ile  Lys  Ser  Gly  Phe  Ser  Ala  Phe  Ser  Thr  Phe  Val
6505                6510                6515

agg  cat  cgc  cac  gcc  gaa  tgg  ggt  aaa  acc  aac  gca  cgc  aga  gcc        39974
Arg  His  Arg  His  Ala  Glu  Trp  Gly  Lys  Thr  Asn  Ala  Arg  Arg  Ala
6520                6525                6530

att  gca  gag  ata  tac  gcc  ggc  ctt  ata  aca  aca  aca  ttg  aca  cga        40019
Ile  Ala  Glu  Ile  Tyr  Ala  Gly  Leu  Ile  Thr  Thr  Thr  Leu  Thr  Arg
6535                6540                6545

caa  tac  ggg  gtt  cat  tgg  gac  aag  ctt  att  tat  tct  ttt  gaa  aaa        40064
Gln  Tyr  Gly  Val  His  Trp  Asp  Lys  Leu  Ile  Tyr  Ser  Phe  Glu  Lys
6550                6555                6560

cac  cac  cta  act  tct  gta  atg  ggc  aat  gga  cta  act  aaa  cca  atc        40109
His  His  Leu  Thr  Ser  Val  Met  Gly  Asn  Gly  Leu  Thr  Lys  Pro  Ile
6565                6570                6575

cag  aga  agg  ggt  gat  gta  cgc  gta  tta  gag  tta  acc  cta  tct  gat        40154
Gln  Arg  Arg  Gly  Asp  Val  Arg  Val  Leu  Glu  Leu  Thr  Leu  Ser  Asp
6580                6585                6590

att  gta  act  att  ttg  gtt  gcc  aca  acc  ccg  gta  cat  ctt  ctc  aat        40199
Ile  Val  Thr  Ile  Leu  Val  Ala  Thr  Thr  Pro  Val  His  Leu  Leu  Asn
6595                6600                6605

ttt  gct  aga  ttg  gat  tta  att  aaa  cag  cat  gag  tat  atg  gcc  cgt        40244
Phe  Ala  Arg  Leu  Asp  Leu  Ile  Lys  Gln  His  Glu  Tyr  Met  Ala  Arg
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65

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acc ctc aga ccc gta atc  gag gcc gca ttt aga  ggt cgt tta ctc     40289
Thr Leu Arg Pro Val Ile  Glu Ala Ala Phe Arg  Gly Arg Leu Leu
6625                6630                 6635

gtt cgc tca ttg gat gga  gac ccg aaa ggc aat  gcc cgg gcc ttt     40334
Val Arg Ser Leu Asp Gly  Asp Pro Lys Gly Asn  Ala Arg Ala Phe
6640                6645                 6650

ttt aat gcc gcc cca tcc  aaa cat aaa ctc ccg  tta gct ctt gga     40379
Phe Asn Ala Ala Pro Ser  Lys His Lys Leu Pro  Leu Ala Leu Gly
6655                6660                 6665

tca aac caa gat cct acc  ggc ggg aga ata ttt  gca ttt cgg atg     40424
Ser Asn Gln Asp Pro Thr  Gly Gly Arg Ile Phe  Ala Phe Arg Met
6670                6675                 6680

gca gat tgg aaa ctt gtt  aaa atg cca cag aaa  ata acg gat cct     40469
Ala Asp Trp Lys Leu Val  Lys Met Pro Gln Lys  Ile Thr Asp Pro
6685                6690                 6695

ttt gcg cca tgg caa ctt  tcc ccc ccc ccc ggg  gta aag gcc aat     40514
Phe Ala Pro Trp Gln Leu  Ser Pro Pro Pro Gly  Val Lys Ala Asn
6700                6705                 6710

gtc gat gca gtt acc cgt  ata atg gca aca gat  cgt ctt gcg acc     40559
Val Asp Ala Val Thr Arg  Ile Met Ala Thr Asp  Arg Leu Ala Thr
6715                6720                 6725

att act gta ctt ggg cgc  atg tgt ctc ccg cca  att tcc tta gtg     40604
Ile Thr Val Leu Gly Arg  Met Cys Leu Pro Pro  Ile Ser Leu Val
6730                6735                 6740

tca atg tgg aat acg ctg  caa ccg gag gaa ttc  gca tac aga aca     40649
Ser Met Trp Asn Thr Leu  Gln Pro Glu Glu Phe  Ala Tyr Arg Thr
6745                6750                 6755

caa gat gat gtg gac att  ata gtt gat gcg aga  ctg gat ttg tca     40694
Gln Asp Asp Val Asp Ile  Ile Val Asp Ala Arg  Leu Asp Leu Ser
6760                6765                 6770

tcc acg ctt aat gca aga  ttt gat acc gct ccc  agc aat acc acg     40739
Ser Thr Leu Asn Ala Arg  Phe Asp Thr Ala Pro  Ser Asn Thr Thr
6775                6780                 6785

tta gag tgg aat aca gac  cgt aaa gta att aca  gat gct tat att     40784
Leu Glu Trp Asn Thr Asp  Arg Lys Val Ile Thr  Asp Ala Tyr Ile
6790                6795                 6800

caa acc ggg gca acg aca  gtt ttt aca gta acg  ggg gcg gca cca     40829
Gln Thr Gly Ala Thr Thr  Val Phe Thr Val Thr  Gly Ala Ala Pro
6805                6810                 6815

act cac gtt tct aat gta  aca gcg ttt gac ata  gca act acg gct     40874
Thr His Val Ser Asn Val  Thr Ala Phe Asp Ile  Ala Thr Thr Ala
6820                6825                 6830
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66

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att   tta ttt ggg gct cct   ttg gtt att gcc atg   gaa ctt aca tcc      40919
Ile   Leu Phe Gly Ala Pro   Leu Val Ile Ala Met   Glu Leu Thr Ser
6835                  6840                  6845

gtt   ttt tca caa aat tcc   gga ctt act ttg ggg   tta aaa tta ttc      40964
Val   Phe Ser Gln Asn Ser   Gly Leu Thr Leu Gly   Leu Lys Leu Phe
6850                  6855                  6860

gat   tcc cgg cat atg gct   aca gat tcg ggt ata   tcc tca gcc gta      41009
Asp   Ser Arg His Met Ala   Thr Asp Ser Gly Ile   Ser Ser Ala Val
6865                  6870                  6875

tct   ccc gat att gtt tct   tgg ggg tta cgt tta   ctg cat atg gat      41054
Ser   Pro Asp Ile Val Ser   Trp Gly Leu Arg Leu   Leu His Met Asp
6880                  6885                  6890

cct   cac cca att gaa aat   gca tgt tta att gtc   caa cta gaa aaa      41099
Pro   His Pro Ile Glu Asn   Ala Cys Leu Ile Val   Gln Leu Glu Lys
6895                  6900                  6905

ctg   tcc gcg ctc att gca   aac aaa cct ctt aca   aac aat ccc ccg      41144
Leu   Ser Ala Leu Ile Ala   Asn Lys Pro Leu Thr   Asn Asn Pro Pro
6910                  6915                  6920

tgt   tta ctg cta ttg gac   gaa cat atg aat ccc   tct tat gtt tta      41189
Cys   Leu Leu Leu Leu Asp   Glu His Met Asn Pro   Ser Tyr Val Leu
6925                  6930                  6935

tgg   gaa cga aaa gac tcg   att cca gct ccg gat   tat gtg gtc ttt      41234
Trp   Glu Arg Lys Asp Ser   Ile Pro Ala Pro Asp   Tyr Val Val Phe
6940                  6945                  6950

tgg   ggg cca gaa tct ctt   att gat ttg ccg tac   atc gac tcc gat      41279
Trp   Gly Pro Glu Ser Leu   Ile Asp Leu Pro Tyr   Ile Asp Ser Asp
6955                  6960                  6965

gag   gac tct ttc ccc tcg   tgt ccc gat gat cca   ttt tac tcg caa      41324
Glu   Asp Ser Phe Pro Ser   Cys Pro Asp Asp Pro   Phe Tyr Ser Gln
6970                  6975                  6980

att   att gcc ggt tat gcg   ccc caa ggc ccc cca   aac ctc gac aca      41369
Ile   Ile Ala Gly Tyr Ala   Pro Gln Gly Pro Pro   Asn Leu Asp Thr
6985                  6990                  6995

act   gat ttt tac cca acg   gag cca cta ttt aag   tct ccc gtt caa      41414
Thr   Asp Phe Tyr Pro Thr   Glu Pro Leu Phe Lys   Ser Pro Val Gln
7000                  7005                  7010

gtt   gtt aga agt tcc aaa   tgt aaa aaa atg ccc   gtc cgg ccc gcg      41459
Val   Val Arg Ser Ser Lys   Cys Lys Lys Met Pro   Val Arg Pro Ala
7015                  7020                  7025

cag   ccc gcg cag ccc gcg   cag ccc gcg cag ccc   gcg cag acc gtc      41504
Gln   Pro Ala Gln Pro Ala   Gln Pro Ala Gln Pro   Ala Gln Thr Val
7030                  7035                  7040
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67

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cag  ccc gcg cag ccc ata  gaa ccg ggc aca caa  ata gtg gta caa    41549
Gln  Pro Ala Gln Pro Ile  Glu Pro Gly Thr Gln  Ile Val Val Gln
7045                 7050                 7055

aat  ttt aag aaa ccc caa  agc gta aaa aca acc  ctt agc caa aaa    41594
Asn  Phe Lys Lys Pro Gln  Ser Val Lys Thr Thr  Leu Ser Gln Lys
7060                 7065                 7070

gat  att ccc ttg tat gtg  gaa acc gaa tca gaa  acg gct gtg ctt    41639
Asp  Ile Pro Leu Tyr Val  Glu Thr Glu Ser Glu  Thr Ala Val Leu
7075                 7080                 7085

ata  cct aag caa tta acc  acc tcc att aaa aca  acc gtt tgt aaa    41684
Ile  Pro Lys Gln Leu Thr  Thr Ser Ile Lys Thr  Thr Val Cys Lys
7090                 7095                 7100

agt  att acc cca cca aat  aac caa ttg tcg gat  tgg aaa aat aat    41729
Ser  Ile Thr Pro Pro Asn  Asn Gln Leu Ser Asp  Trp Lys Asn Asn
7105                 7110                 7115

cca  cag caa aac caa acg  tta aac caa gcg ttc  agt aaa cca ata    41774
Pro  Gln Gln Asn Gln Thr  Leu Asn Gln Ala Phe  Ser Lys Pro Ile
7120                 7125                 7130

ctt  gag att acc tcc att  ccg aca gat gac tcg  ata tct tac cgg    41819
Leu  Glu Ile Thr Ser Ile  Pro Thr Asp Asp Ser  Ile Ser Tyr Arg
7135                 7140                 7145

act  tgg att gaa aaa tca  aat caa aca caa aaa  cgg cat caa aat    41864
Thr  Trp Ile Glu Lys Ser  Asn Gln Thr Gln Lys  Arg His Gln Asn
7150                 7155                 7160

gac  cct cga atg tat aac  tcc aaa aca gta ttc  cac cct gta aat    41909
Asp  Pro Arg Met Tyr Asn  Ser Lys Thr Val Phe  His Pro Val Asn
7165                 7170                 7175

aac  caa tta cct tct tgg  gtt gac acg gca gcc  gat gcc ccc caa    41954
Asn  Gln Leu Pro Ser Trp  Val Asp Thr Ala Ala  Asp Ala Pro Gln
7180                 7185                 7190

acg  gac cta ttg aca aac  tat aaa aca aga cag  ccg tcg cca aac    41999
Thr  Asp Leu Leu Thr Asn  Tyr Lys Thr Arg Gln  Pro Ser Pro Asn
7195                 7200                 7205

ttt  ccg cgg gac gta cac  aca tgg ggc gta tct  tct aac ccg ttt    42044
Phe  Pro Arg Asp Val His  Thr Trp Gly Val Ser  Ser Asn Pro Phe
7210                 7215                 7220

aac  tca ccg aac aga gac  cta tat caa agt gat  ttt agt gaa cct    42089
Asn  Ser Pro Asn Arg Asp  Leu Tyr Gln Ser Asp  Phe Ser Glu Pro
7225                 7230                 7235

tct  gac ggc tat agc agt  gag agt gaa aat tct  atc gta cta agt    42134
Ser  Asp Gly Tyr Ser Ser  Glu Ser Glu Asn Ser  Ile Val Leu Ser
7240                 7245                 7250

ctc  gac gaa cat cgg tca  tgt cgc gtt cct agg  cac gta cgc gtt    42179
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Leu  Asp Glu His Arg Ser  Cys Arg Val Pro Arg  His Val Arg Val
7255                  7260              7265

gtt  aat gcc gat gta gtc  acc ggt cga cgt tat  gtc cga ggg acc    42224
Val  Asn Ala Asp Val Val  Thr Gly Arg Arg Tyr  Val Arg Gly Thr
7270             7275              7280

gcc  ttg gga gca ctg gca  ctg tta agc cag gca  tgt cgg cgt atg    42269
Ala  Leu Gly Ala Leu Ala  Leu Leu Ser Gln Ala  Cys Arg Arg Met
7285             7290              7295

atc  gac aac gtt aga tat  aca cgt aaa ctt tta  atg gac cac acg    42314
Ile  Asp Asn Val Arg Tyr  Thr Arg Lys Leu Leu  Met Asp His Thr
7300             7305              7310

gaa  gat ata ttt caa ggc  ctg ggg tat gtt aaa  ttg tta tta gat    42359
Glu  Asp Ile Phe Gln Gly  Leu Gly Tyr Val Lys  Leu Leu Leu Asp
7315             7320              7325

gga  aca tat ata taa agtagcgcct attaaagaaa aaaaaaaaac aacgattatt    42414
Gly  Thr Tyr Ile
7330

ttctgtgtat ttttatttac accctacgac ttcttgaagc gtttccagat tgtcccgtgt    42474

gtgacaaggt ctgtccctta cccccctggg gggtattttg ggttgggggc ggggtagact    42534

gtggcacgcc ttgggccgcg ggcggtgatc cggttgttgg ctggacagtg cttgactgtg    42594

ctccctgttg cggttgttgt ccagaagacc ccgacaccac gtgttgctgt tgtccaacgg    42654

atgccgacgt cgtttgaggt ggggggtgtt gcggggatga tcccgaaaac gccaacgcgg    42714

cgggctgttg taaagcagac tgatcggcgc tctgtgtttt ttgcggcaat atagtaggcc    42774

ccgagattcc caaactcatg gatggatttg ggggttgtgg tcgtataata cgcgggttaa    42834

acgtacgttt taagccaacc gttggtctta accatgtcat agggtcagtc tcggcaaaca    42894

tggccgttcg gcgtatcgta tttgcattat ggttagcgcg tgcacgcgcg gcactggccg    42954

cggctcccac ggtgtaaatg cttctggcat cagcgatgtc cacacggtga ccaggttgca    43014

aaggtccact ggcgtttaaa agtcgtatta aagcaacggg ggtgtaagcc gcaattgctt    43074

ccaccgaaaa tgtggtgggg ttgctgggat caaagactac acgagacgat gcgggttgtg    43134

tcatcgttta ttagtttacg ggacaatcga taacagcata cacgtacatc tgcgcaggat    43194

atgtacggaa aggcaattta tttccagaaa agcaccgccc ctaatacaac taccagtaca    43254

attacaatga acagggcata tgtcacgtta gctacgggta gagcaagttt ccagacacgc    43314

gtagtttggg tatcgggtaa cgcaggttta atgtcacttt gcatttgaac agacgtgttt    43374

ggacttccgt tctcgggtgg ggatctgaat gaaggccgcc agcgtatata ttcatccaaa    43434
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ttattgccag tttccttata catgtatgca tccgtggcgc gggccataag tttaatggtg    43494

cgagatggat cttccggtcc cataaaacga aaggataact gaacatatgg cattcgcaca    43554

aagcagttca cccacattaa agcctggaga ggtcggcggt caataccccc acctcgttta    43614

attgattcca aagcagatag gttgataccg gtacttaacg ttgaactaag aatcacgtta    43674

ttactgtcaa tggacacttc agccactggt gcgttagtcg acgaaaaaa aaaaccttga     43734

aatagcacag acacccccgt attttgaatt tttatgtaag ggtcacaatc tacttgcgcc    43794

caattcgcca ttaaacgcat aatatactct accggaaagg cttcggatac gttgtcttcg    43854

ccgttaaact gaaaaacaca acgggcgggg gggcgttgtg gatcaaatat tggaagatcc    43914

ccatcgcaac attgaagagc gcttggtacc accaccgaa tacgttgtaa aagattatct     43974

ccgcaacccc tcctgcgttc actccgtaca tacgttctcc gtgacatatt gatctaaggt    44034

tgcaaaccaa ggcacacgcg tgaagtattt agaccattta tcgtgggata taggaggagt    44094

ttggagtgat ccacccccctg acgacttatt aatgcgttta ttttccccat gtattaagca   44154

tccttcaata tttcatgcaa atctagaaat ttggccatga ctcccgcaaa gcgttcacgg    44214

cgacgggtca cgctggcact atgttcacat ggaacaacat aagcagattt ttctgaatcg    44274

ttactttctt tatgtttaa aacggacgcc aggcgactgg taaatgatat ataatttaat     44334

tgagcgtcag ttgtaggtag aattgcttct atttccgggg gaattaaatt ttcaaaccaa    44394

acggaaagag taaaggtgct atcagcagga aaatactttg actccagtgc atcgatattt    44454

aatagattaa catcggtgtc tgtaattaaa tcgcgggccc tcatcccaga g atg gat    44511
                                                            Met Asp
                                                            7335

cgg gta gaa tca gaa  gaa ccc atg gat gga  ttc gaa tcg ccc gta        44556
Arg Val Glu Ser Glu  Glu Pro Met Asp Gly  Phe Glu Ser Pro Val
            7340              7345                 7350

ttc tcc gaa aat aca  tct tct aat tcc gga  tgg tgt tcc gac gca        44601
Phe Ser Glu Asn Thr  Ser Ser Asn Ser Gly  Trp Cys Ser Asp Ala
            7355              7360                 7365

ttt tcc gat tcg tac  atc gct tat aat cca  gcc ctt ctg cta aaa        44646
Phe Ser Asp Ser Tyr  Ile Ala Tyr Asn Pro  Ala Leu Leu Leu Lys
            7370              7375                 7380

aac gat ttg tta ttt  tca gaa ttg tta ttt  gcc tcc cac tta ata        44691
Asn Asp Leu Leu Phe  Ser Glu Leu Leu Phe  Ala Ser His Leu Ile
            7385              7390                 7395

aat gtt ccc cgt gca  ata gaa aac aac gtc  act tat gag gcc tct        44736
Asn Val Pro Arg Ala  Ile Glu Asn Asn Val  Thr Tyr Glu Ala Ser
            7400              7405                 7410
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tcg gcg gta ggt gtg  gat aat gaa atg acc  tca agt acc act gaa        44781
Ser Ala Val Gly Val  Asp Asn Glu Met Thr  Ser Ser Thr Thr Glu
                7415              7420              7425

ttt ata gaa gaa att  gga gac gtt ttg gcg  tta gac aga gcc tgt        44826
Phe Ile Glu Glu Ile  Gly Asp Val Leu Ala  Leu Asp Arg Ala Cys
                7430              7435              7440

ttg gtc tgc aga acg  ctt gat ttg tat aaa  cgt aaa ttt gga ctg        44871
Leu Val Cys Arg Thr  Leu Asp Leu Tyr Lys  Arg Lys Phe Gly Leu
                7445              7450              7455

aca ccg gaa tgg gtt  gcg gac tac gcc atg  tta tgt atg aaa agt        44916
Thr Pro Glu Trp Val  Ala Asp Tyr Ala Met  Leu Cys Met Lys Ser
                7460              7465              7470

ctg gca tcc ccg ccc  tgt gca gtt gtc act  ttt agc gct gcc ttt        44961
Leu Ala Ser Pro Pro  Cys Ala Val Val Thr  Phe Ser Ala Ala Phe
                7475              7480              7485

gaa ttt gtg tat ctt  atg gat cgt tac tac  ctg tgc cgt tat aac        45006
Glu Phe Val Tyr Leu  Met Asp Arg Tyr Tyr  Leu Cys Arg Tyr Asn
                7490              7495              7500

gtt act ttg gtt ggg  tcc ttt gcc agg cgc  acg ctt tcc ctg tta        45051
Val Thr Leu Val Gly  Ser Phe Ala Arg Arg  Thr Leu Ser Leu Leu
                7505              7510              7515

gat ata caa aga cat  ttt ttt ttg cat gta  tgt ttt cgt acc gat        45096
Asp Ile Gln Arg His  Phe Phe Leu His Val  Cys Phe Arg Thr Asp
                7520              7525              7530

gga ggg tta cca ggt  ata cga ccg ccc ccc  ggt aag gaa atg gcc        45141
Gly Gly Leu Pro Gly  Ile Arg Pro Pro Pro  Gly Lys Glu Met Ala
                7535              7540              7545

aac aaa gta aga tat  tcc aat tac tcc ttt  ttt gta cag gcg gta        45186
Asn Lys Val Arg Tyr  Ser Asn Tyr Ser Phe  Phe Val Gln Ala Val
                7550              7555              7560

gtt agg gct gca tta  cta tcg atc agc acg  tct cgt tta gac gaa        45231
Val Arg Ala Ala Leu  Leu Ser Ile Ser Thr  Ser Arg Leu Asp Glu
                7565              7570              7575

acc gaa acg cgt aag  tca ttt tac ttt aat  cag gac gga ctg act        45276
Thr Glu Thr Arg Lys  Ser Phe Tyr Phe Asn  Gln Asp Gly Leu Thr
                7580              7585              7590

gga ggc cct caa cct  tta gcg gcc gcc ttg  gct aat tgg aaa gat        45321
Gly Gly Pro Gln Pro  Leu Ala Ala Ala Leu  Ala Asn Trp Lys Asp
                7595              7600              7605

tgc gcg cgg atg gtt  gac tgt tca tca tcg  gaa cat cgc aca agt        45366
Cys Ala Arg Met Val  Asp Cys Ser Ser Ser  Glu His Arg Thr Ser
                7610              7615              7620
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ggg atg att acc tgc  gcg gaa cgt gca tta  aaa gag gat ata gag      45411
Gly Met Ile Thr Cys  Ala Glu Arg Ala Leu  Lys Glu Asp Ile Glu
            7625               7630                 7635

ttt gaa gat ata tta  ata gac aaa ctt aaa  aaa tcg tct tac gta      45456
Phe Glu Asp Ile Leu  Ile Asp Lys Leu Lys  Lys Ser Ser Tyr Val
            7640               7645                 7650

gaa gca gct tgg ggt  tac gca gac ttg gct  tta tta tta ctg agt      45501
Glu Ala Ala Trp Gly  Tyr Ala Asp Leu Ala  Leu Leu Leu Leu Ser
            7655               7660                 7665

ggg gtt gct act tgg  aat gta gac gag cgt  aca aat tgt gct ata      45546
Gly Val Ala Thr Trp  Asn Val Asp Glu Arg  Thr Asn Cys Ala Ile
            7670               7675                 7680

gaa act cgc gtt gga  tgt gtt aaa tca tac  tgg cag gcg aac cgg      45591
Glu Thr Arg Val Gly  Cys Val Lys Ser Tyr  Trp Gln Ala Asn Arg
            7685               7690                 7695

att gaa aac tcc agg  gac gtt cca aaa caa  ttt tcc aaa ttt acg      45636
Ile Glu Asn Ser Arg  Asp Val Pro Lys Gln  Phe Ser Lys Phe Thr
            7700               7705                 7710

agc gag gat gcc tgt  ccc gaa gta gca ttt  ggg cct att ttg tta      45681
Ser Glu Asp Ala Cys  Pro Glu Val Ala Phe  Gly Pro Ile Leu Leu
            7715               7720                 7725

act acc tta aaa aac  gca aag tgc cgt ggt  cgc acg aat acc gaa      45726
Thr Thr Leu Lys Asn  Ala Lys Cys Arg Gly  Arg Thr Asn Thr Glu
            7730               7735                 7740

tgc atg tta tgt tgt  tta tta acc ata ggg  cac tat tgg atc gct      45771
Cys Met Leu Cys Cys  Leu Leu Thr Ile Gly  His Tyr Trp Ile Ala
            7745               7750                 7755

ttg cgg cag ttt aaa  agg gat ata tta gca  tac tca gca aat aac      45816
Leu Arg Gln Phe Lys  Arg Asp Ile Leu Ala  Tyr Ser Ala Asn Asn
            7760               7765                 7770

aca agt tta ttt gac  tgt atc gaa cct gta  atc aat gca tgg agc      45861
Thr Ser Leu Phe Asp  Cys Ile Glu Pro Val  Ile Asn Ala Trp Ser
            7775               7780                 7785

cta gat aac ccc att  aaa ctt aaa ttt cca  ttt aat gat gag ggt      45906
Leu Asp Asn Pro Ile  Lys Leu Lys Phe Pro  Phe Asn Asp Glu Gly
            7790               7795                 7800

cga ttc ata acc att  gta aaa gca gca ggt  tcc gag gcc gta tat      45951
Arg Phe Ile Thr Ile  Val Lys Ala Ala Gly  Ser Glu Ala Val Tyr
            7805               7810                 7815

aaa cat tta ttt tgc  gat ctc cta tgc gct  ctc tcg gaa tta cag      45996
Lys His Leu Phe Cys  Asp Leu Leu Cys Ala  Leu Ser Glu Leu Gln
            7820               7825                 7830

aca aac cct aaa att  tta ttt gcc cat cct  aca acc gcg gat aag      46041
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Thr Asn Pro Lys Ile  Leu Phe Ala His Pro  Thr Thr Ala Asp Lys
                7835                  7840                  7845

gaa gtg ttg gag tta  tat aaa gcc caa ctg  gct gca caa aac aga    46086
Glu Val Leu Glu Leu  Tyr Lys Ala Gln Leu  Ala Ala Gln Asn Arg
                7850                  7855                  7860

ttt gaa ggt cgt gta  tgt gct ggc ctg tgg  aca ttg gcg tat gca    46131
Phe Glu Gly Arg Val  Cys Ala Gly Leu Trp  Thr Leu Ala Tyr Ala
                7865                  7870                  7875

ttt aaa gcc tac cag  att ttt cca cgc aaa  cca acc gcc aat gcc    46176
Phe Lys Ala Tyr Gln  Ile Phe Pro Arg Lys  Pro Thr Ala Asn Ala
                7880                  7885                  7890

gca ttc ata cga gat  gga gga ctt atg ctt  cga cga cat gca ata    46221
Ala Phe Ile Arg Asp  Gly Gly Leu Met Leu  Arg Arg His Ala Ile
                7895                  7900                  7905

tcg ctg gtc tcc ctc  gaa cac acc cta tcg  aag tat gtc tag        46263
Ser Leu Val Ser Leu  Glu His Thr Leu Ser  Lys Tyr Val
                7910                  7915

gcgatataaa tccgtatctc ggagcgggcc ttcgatgcgt gtacgctcca gaacgccatg    46323

ccgccgtcaa accattcgag gaaaacttat gtcaaaggag cggtctgtgt accgccatta    46383

ttttaattac atcgcaaggt cccccccaga agaactagct accgttagag cttaatcgt    46443

gccaattatt aagacgaccc ctgtcaccct tccgtttaac ttgggtcaga cagtggcgga    46503

taactgcctg tcgttatccg gaatgggtta tcatttaggt ctcggaggtt attgtccgac    46563

atgcactgca tctggagaac cgcgtctatg tcgaaccgat cgggcggctc tgatactagc    46623

atatgttcag cagcttaaca acatatacga atatcgtgtg tttcttgcat ccattttggc    46683

gctatcagac cgagccaaca tgcaagcagc gtccgctgaa cccctattgt cgagcgtatt    46743

ggcacaaccg gaattatttt ttatgtatca tattatgagg gagggggggca tgcgagatat    46803

acgcgtactt ttttatcgtg atggagatgc cggagggttt atgatgtatg ttatatttcc    46863

ggggaaatct gttcacctcc attacagact aatcgatcat atacaggccg cgtgtcgggg    46923

gtataaaata gtcgcacacg tttggcagac aacattttta ctgtcggtat gtcgcaaccc    46983

agaacaacaa acagagactg tggtgccatc cattggaaca tcggacgttt actgtaaaat    47043

gtgtgacctt aactttgatg gagaattgct tttggaatac aaaagactct acgcattatt    47103

tgatgacttt gttcctcctc ggtgatttca gcttcagtgt tcattttatt atcccagcac    47163

ggggcgtgta tacaaacaaa gcctgccgcc tgcaagcggt ttagcatttt aacgttaaca    47223

actcgtgtct ctggaataaa acgttttaaa agccgttctg tgagtttagt gtcgtttcca    47283
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73

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aataacgcct taaaagttac actcgccgtc ccaatgagat gagaaaaata atagtcaatg   47343

tttaaagaca gcccgtgtga tgttacgtga atgggatctt ccgctaagtc agatattatt   47403

aacttacgct ttgcttcccc acaccgttta cctgcggtat tctgtaaagg atctccacgt   47463

agcaaagcta cactttttgc atcagcctcc acttcgtctg tgggggccac aataacataa   47523

gggatgcgtt ctcgaacgtt tgggatttga ccctgtctca ttactaattt ataatatact   47583

gttaagtgag ccaagcgacg gtttatgtag gcggatggtg gacgactaag ctcggccgtc   47643

ataacaaact tattaatatc caatttgggt gatgtaatct ggcgatgtgc atctgcaatt   47703

atgcgtccaa acccggccat cccagacggc atggcccgtc tattccattc agcaatggaa   47763

acacacgacg cctccgccgc agcacgcgag acggtgtcgt catataacaa cagttctaca   47823

agtttgcggg cataatcgtt aataaattga cagttgtttt ttctaaccaa gtcgactccc   47883

ttcattaaaa cctttccgcc gtaaattacc ccaatgtact ttttctttgt tataagcaaa   47943

agttttataa aagttttttc acactccaac tttataggag gacaaaacag agccgttgaa   48003

attatatgtg ccattttctc gccgatttta gctatcccct caacactaac acccttgaat   48063

cggataaaca cagaatccgt atctccatat ataacctttta cctcgtacgc tttttgggag   48123

agaacgctac tttcaatgtc tggaaacgct gtaataaaac gttcaaatgc ggcccagtta   48183

ttatgaatat aatctctggt acttaataac atttgacggc caattgtagt gacagtggcc   48243

gctacgtata aacatggcag aaatccctgc gcaactccag taaaaccgta cacggaatta   48303

caaactactt ttatcgcggc ttgttgtttg tctaataaca ctgcttcatc tgaagaactt   48363

ccgggtatgc gcgctctaat agccttgcgc atagccaacc agtctttttaa aagaacaccc   48423

agcagacttt ctcgaacgtt agagcgcaca aaaaaaagac gttttcctcc aactgtaaag   48483

gtggcataat cggatggatt caaacgttta accgtctcaa aatttaacgt tagcgtggta   48543

aaacataagt tatgggcctg aattatactt ggatataaac ttgcaaaatc caatacgacc   48603

accggatcga tataaaatcc cgtatcaggg tcaaaaaccc tggctccttt atatcctaca   48663

tttcgcccac ttgacgtacc agtgggagaa acgctctcgt cttcatccat ctcttcctca   48723

acatccccga catcgggaat aacatcctta tattcaaaag tagctgggta tcccccatcg   48783

ggtaaaataa atcctcgaga cgaagccagt cctaataaac aggtgtaaat cctaacctgc   48843

tgtccgtcgt aaatagcctt ggttaaagta attctagcta gccttgcaac cgcggataac   48903

tcaaggtgtg gtaaatattt aaaaaacagt ttccccacaa gagccgagtc ttgtatacaa   48963

tattcaccaa taattcctcg tgtattcggt ccactagcgt aatatcccgg aatgtctttg   49023
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tagggcaaat ctctcttgga ctcatttaga gcttcacgtg caaccgaatc taatttataa   49083

ctcgagagtt ttaatttttc agttgcaatt gcatacatat ccagagatat gagaccgttg   49143

atctttacct tgcttcgtcg ctgaaatccg gatttgccaa catcccatat cttaaacaga   49203

cccccacggt ttatactgcc ataaccatca agcttgagac tgtatataga attaagtttc   49263

tccataataa acgcccaatc aaaattaaca atgttataac ctgtggcaaa ctcgggagcg   49323

tactgtttta cgagggtcat aaatgcaatt aatagctcga attcactatc aaactccagc   49383

acagtcggct ccggtaaccc cgcgtccttc atttcttgta catacctttg tggtaagtca   49443

caagagccaa gggaaaacag taaaatgtgt tctaaagact gtcgagggat tgaatataat   49503

agacaagaaa tttggattac aagatcctcc agatgtgttg catcgggaaa cgccagctca   49563

ttagatcctc ctgatttaca ttcaatatcg aaacataaca acttgtagtc aggccatgag   49623

tcatcgtttg gtatagcctg cagattatcc gacatgcagt caatttcaac gtcgcttaac   49683

gttaattggc gacttgccgg tcgaactcga acacgttccc catcaactcc aggtttttagt   49743

tgataccaac caaaactaac aaagccggga ttatccatta gaaaacgagt ggtagcgtct   49803

acccgacctt catacttttt caactccggg tgaaagttat cacaaagata atttgtaaat   49863

ttagatgagg gagaatacac cctgtaaaac gcacatggct gtgtatcgta gtaataaaca   49923

tctgtgcgct caataacctc aacgcgaaag ctttctggag atgcgctttt aaacgaggta   49983

ccatgaaaag cgttcttgtc tccatttaac gttgcatcat tttgtgttat catagaactg   50043

cgtaaacact cggcaagtaa tacagataac tcgctaccgg aacgtatgcc acaagcggta   50103

tccacctcgg ctttgtttat ataaaaatat tgacagatgc cgtatacatg aactgccacc   50163

ctttttccac atcgggacat gccaagtaaa gtaataacgg taccaagcgg tcgtgttgca   50223

gttgcaaacc gggatacatc tccattagac gcggcttctg ttgtttcgac aatatcatat   50283

acatggaatg tgttaaagcg ggggtcaaac ttatccccac gaaagtcgat ttccccccaa   50343

atattcacgc gtctaggcca ggggctggaa caacgaaaat ccagaatcgg aacttctttt   50403

ccattacagt aaactttagg cggtcgacta agtgtaccga cgtgaacccc ctttcgttct   50463

tccatgggca catcttcatc taaacattta ggggccaaaa attgaaacga tgacatggta   50523

gttttgtaac tatgaagaaa ttctctgtta ctaccgcgcc cggttcttgg gttatattta   50583

atccctgatg cttgggttaa aaagggatta caaaaccccg ttctgatcgc cattttatgt   50643

taacgattga taatcttgta aaaagccagt gttactgagt aacacaaccc cacgcccttc   50703
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taatacataa agtgtaatca cgtgatttgt tgtggtttcc gcatatgtaa tacccgttta   50763

aaagcctctc ttcttaatgt atcgacagac tgggtttttgg gtggtcattt gaccctgcca   50823

acaaccccccc attattacga gtacttcacc aaa atg gaa   aat act cag aag   50874
                                    Met Glu   Asn Thr Gln Lys
                                        7920

act gtg aca gtg ccc acg ggg ccc ctg ggt tac gtt tat gcg tgc   50919
Thr Val Thr Val Pro Thr Gly Pro Leu Gly Tyr Val Tyr Ala Cys
7925   7930   7935

cgg gtt gaa gat ttg gat ctg gag gaa att tca ttt ttg gcc gct   50964
Arg Val Glu Asp Leu Asp Leu Glu Glu Ile Ser Phe Leu Ala Ala
7940   7945   7950

cgt agc acg gac tct gat ttg gct tta tta cct ttg atg cgt aat   51009
Arg Ser Thr Asp Ser Asp Leu Ala Leu Leu Pro Leu Met Arg Asn
7955   7960   7965

ttg acc gtg gaa aaa act ttt aca tcc agc ctg gcg gtg gtt tct   51054
Leu Thr Val Glu Lys Thr Phe Thr Ser Ser Leu Ala Val Val Ser
7970   7975   7980

gga gca cgc act acg ggt ctt gcc gga gct ggt att acc tta aaa   51099
Gly Ala Arg Thr Thr Gly Leu Ala Gly Ala Gly Ile Thr Leu Lys
7985   7990   7995

ctc act acc agt cat ttc tat cca tct gtc ttt gtc ttt cac gga   51144
Leu Thr Thr Ser His Phe Tyr Pro Ser Val Phe Val Phe His Gly
8000   8005   8010

ggc aaa cac gtt tta ccc agc tcc gcg gcc cca aat ctc aca cgc   51189
Gly Lys His Val Leu Pro Ser Ser Ala Ala Pro Asn Leu Thr Arg
8015   8020   8025

gcg tgt aac gcg gct cga gaa cgg ttt ggg ttt tca cgc tgc caa   51234
Ala Cys Asn Ala Ala Arg Glu Arg Phe Gly Phe Ser Arg Cys Gln
8030   8035   8040

ggg cct cct gtt gac ggt gct gtt gag acg acc ggc gct gag ata   51279
Gly Pro Pro Val Asp Gly Ala Val Glu Thr Thr Gly Ala Glu Ile
8045   8050   8055

tgc acc cgc ctt gga tta gag cca gaa aat aca ata tta tac ttg   51324
Cys Thr Arg Leu Gly Leu Glu Pro Glu Asn Thr Ile Leu Tyr Leu
8060   8065   8070

gtg gtc acg gca ttg ttt aag gaa gcc gta ttt atg tgc aac gtg   51369
Val Val Thr Ala Leu Phe Lys Glu Ala Val Phe Met Cys Asn Val
8075   8080   8085

ttt ctg cat tat gga gga ctc gat att gtt cat att aac cat ggg   51414
Phe Leu His Tyr Gly Gly Leu Asp Ile Val His Ile Asn His Gly
8090   8095   8100

gat gtt ata cgt ata ccg tta ttt ccg gta caa ctt ttc atg ccc   51459

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Asp Val Ile Arg Ile Pro  Leu Phe Pro Val Gln  Leu Phe Met Pro
8105              8110              8115

gat gtt aac cgt ctg gta  ccc gac cca ttc aac  act cat cac agg   51504
Asp Val Asn Arg Leu Val  Pro Asp Pro Phe Asn  Thr His His Arg
8120              8125              8130

tct atc gga gag ggt ttt  gta tac cca aca ccc  ttt tat aac acc   51549
Ser Ile Gly Glu Gly Phe  Val Tyr Pro Thr Pro  Phe Tyr Asn Thr
8135              8140              8145

ggg ttg tgc cat tta ata  cat gac tgt gtt att  gct ccc atg gcc   51594
Gly Leu Cys His Leu Ile  His Asp Cys Val Ile  Ala Pro Met Ala
8150              8155              8160

gtt gcc ttg cgc gtc aga  aat gta act gcc gtc  gcc cga gga gcg   51639
Val Ala Leu Arg Val Arg  Asn Val Thr Ala Val  Ala Arg Gly Ala
8165              8170              8175

gcc cac ctt gct ttt gat  gaa aat cac gag ggg  gca gta ctc ccc   51684
Ala His Leu Ala Phe Asp  Glu Asn His Glu Gly  Ala Val Leu Pro
8180              8185              8190

cct gac att acg tac acg  tat ttt cag tcc tct  tca agt gga acc   51729
Pro Asp Ile Thr Tyr Thr  Tyr Phe Gln Ser Ser  Ser Ser Gly Thr
8195              8200              8205

act acc gcc cgt gga gcg  cgt cga aac gat gtc  aac tcc acg tct   51774
Thr Thr Ala Arg Gly Ala  Arg Arg Asn Asp Val  Asn Ser Thr Ser
8210              8215              8220

aag cct agc cca tcg ggg  ggg ttt gaa aga cgg  ttg gcg tct att   51819
Lys Pro Ser Pro Ser Gly  Gly Phe Glu Arg Arg  Leu Ala Ser Ile
8225              8230              8235

atg gcc gct gac aca gcc  ttg cac gca gaa gtt  ata ttc aac act   51864
Met Ala Ala Asp Thr Ala  Leu His Ala Glu Val  Ile Phe Asn Thr
8240              8245              8250

gga att tac gaa gaa act  cca aca gat atc aaa  gaa tgg cca atg   51909
Gly Ile Tyr Glu Glu Thr  Pro Thr Asp Ile Lys  Glu Trp Pro Met
8255              8260              8265

ttt ata ggc atg gag ggc  act ttg cca agg cta  aac gct ctg ggg   51954
Phe Ile Gly Met Glu Gly  Thr Leu Pro Arg Leu  Asn Ala Leu Gly
8270              8275              8280

tca tat acc gct cgt gtg  gcc ggg gtc att ggt  gcg atg gtt ttc   51999
Ser Tyr Thr Ala Arg Val  Ala Gly Val Ile Gly  Ala Met Val Phe
8285              8290              8295

agc cca aat tct gcg ttg  tat cta act gag gtg  gag gat agc ggg   52044
Ser Pro Asn Ser Ala Leu  Tyr Leu Thr Glu Val  Glu Asp Ser Gly
8300              8305              8310

atg acc gaa gcc aag gat  ggg gga ccg ggt cca  tca ttt aat cga   52089
Met Thr Glu Ala Lys Asp  Gly Gly Pro Gly Pro  Ser Phe Asn Arg
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ttt tac cag ttt gcc gga cct cat tta gct gcg aat ccc caa aca   52134
Phe Tyr Gln Phe Ala Gly Pro His Leu Ala Ala Asn Pro Gln Thr
8330   8335   8340

gat cga gat ggc cac gtt cta tcc agt cag tct acg ggt tca tca   52179
Asp Arg Asp Gly His Val Leu Ser Ser Gln Ser Thr Gly Ser Ser
8345   8350   8355

aac aca gag ttt agc gtg gat tat ttg gca ctc att tgt gga ttt   52224
Asn Thr Glu Phe Ser Val Asp Tyr Leu Ala Leu Ile Cys Gly Phe
8360   8365   8370

gga gca ccc ctg ttg gcg cga ctg ctt ttt tat cta gaa cgc tgt   52269
Gly Ala Pro Leu Leu Ala Arg Leu Leu Phe Tyr Leu Glu Arg Cys
8375   8380   8385

gac gct ggt gcg ttt aca ggg ggt cac ggg gat gcg tta aaa tat   52314
Asp Ala Gly Ala Phe Thr Gly Gly His Gly Asp Ala Leu Lys Tyr
8390   8395   8400

gtt acg ggg acc ttt gac tct gaa att cca tgt agt tta tgt gaa   52359
Val Thr Gly Thr Phe Asp Ser Glu Ile Pro Cys Ser Leu Cys Glu
8405   8410   8415

aaa cac acg cgg ccg gta tgc gct cac aca aca gta cac cga ctt   52404
Lys His Thr Arg Pro Val Cys Ala His Thr Thr Val His Arg Leu
8420   8425   8430

aga caa cgc atg ccg cga ttt gga caa gcc acc cgt caa cct att   52449
Arg Gln Arg Met Pro Arg Phe Gly Gln Ala Thr Arg Gln Pro Ile
8435   8440   8445

ggg gtg ttt gga aca atg aac agc caa tat agc gac tgc gat cct   52494
Gly Val Phe Gly Thr Met Asn Ser Gln Tyr Ser Asp Cys Asp Pro
8450   8455   8460

cta gga aac tat gct cca tat tta atc ctt cga aaa ccc ggg gat   52539
Leu Gly Asn Tyr Ala Pro Tyr Leu Ile Leu Arg Lys Pro Gly Asp
8465   8470   8475

caa acg gaa gca gca aag gca acc atg cag gac act tat agg gct   52584
Gln Thr Glu Ala Ala Lys Ala Thr Met Gln Asp Thr Tyr Arg Ala
8480   8485   8490

aca cta gaa cgc ttg ttt atc gat cta gaa caa gag cga cta ctg   52629
Thr Leu Glu Arg Leu Phe Ile Asp Leu Glu Gln Glu Arg Leu Leu
8495   8500   8505

gat cgc ggt gcc cca tgt tct tcc gag gga cta tcg tct gtc att   52674
Asp Arg Gly Ala Pro Cys Ser Ser Glu Gly Leu Ser Ser Val Ile
8510   8515   8520

gtg gat cat cca acg ttt cgt cgc ata tta gac aca ctg cgt gcg   52719
Val Asp His Pro Thr Phe Arg Arg Ile Leu Asp Thr Leu Arg Ala
8525   8530   8535

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cgt ata gaa cag aca aca  aca caa ttt atg aaa  gtg ttg gtt gag      52764
Arg Ile Glu Gln Thr Thr  Thr Gln Phe Met Lys  Val Leu Val Glu
8540            8545      8545          8550

acc cgc gat tat aag atc  cgt gaa gga tta tcc  gaa gcc acc cat      52809
Thr Arg Asp Tyr Lys Ile  Arg Glu Gly Leu Ser  Glu Ala Thr His
8555            8560                8565

tca atg gcg tta acg ttt  gat cca tac tca gga  gca ttt tgt ccc      52854
Ser Met Ala Leu Thr Phe  Asp Pro Tyr Ser Gly  Ala Phe Cys Pro
8570            8575                8580

att acc aat ttt tta gtt  aaa cga aca cac cta  gcc gtg gta caa      52899
Ile Thr Asn Phe Leu Val  Lys Arg Thr His Leu  Ala Val Val Gln
8585            8590                8595

gac tta gca tta agc caa  tgt cat tgt gta ttt  tac gga cag caa      52944
Asp Leu Ala Leu Ser Gln  Cys His Cys Val Phe  Tyr Gly Gln Gln
8600            8605                8610

gtt gag ggg cgg aac ttt  cgt aac caa ttc caa  cct gtt ttg cgg      52989
Val Glu Gly Arg Asn Phe  Arg Asn Gln Phe Gln  Pro Val Leu Arg
8615            8620                8625

cgg cgt ttt gtt gac ctg  ttt aat ggg ggg ttt  ata tca aca cgc      53034
Arg Arg Phe Val Asp Leu  Phe Asn Gly Gly Phe  Ile Ser Thr Arg
8630            8635                8640

tct ata acc gta aca tta  tct gaa ggt cct gta  tcc gcc cca aat      53079
Ser Ile Thr Val Thr Leu  Ser Glu Gly Pro Val  Ser Ala Pro Asn
8645            8650                8655

ccg aca ttg gga caa gac  gcg ccc gcg ggg cgt  acc ttt gat ggg      53124
Pro Thr Leu Gly Gln Asp  Ala Pro Ala Gly Arg  Thr Phe Asp Gly
8660            8665                8670

gat tta gcg cgc gta agc  gtg gaa gtt att cgg  gat ata cga gtt      53169
Asp Leu Ala Arg Val Ser  Val Glu Val Ile Arg  Asp Ile Arg Val
8675            8680                8685

aaa aat agg gtc gtt ttt  tca ggt aac tgt aca  aat ctc tct gag      53214
Lys Asn Arg Val Val Phe  Ser Gly Asn Cys Thr  Asn Leu Ser Glu
8690            8695                8700

gca gcc cgg gca agg ctt  gta ggc ctt gca agt  gcg tac caa cgc      53259
Ala Ala Arg Ala Arg Leu  Val Gly Leu Ala Ser  Ala Tyr Gln Arg
8705            8710                8715

caa gaa aaa aga gtg gat  atg tta cac ggg gcc  cta ggg ttt ttg      53304
Gln Glu Lys Arg Val Asp  Met Leu His Gly Ala  Leu Gly Phe Leu
8720            8725                8730

ctt aaa cag ttt cac ggc  ctg tta ttt cct cgg  ggt atg cca cca      53349
Leu Lys Gln Phe His Gly  Leu Leu Phe Pro Arg  Gly Met Pro Pro
8735            8740                8745
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aac agt aaa tcc ccc aac   ccg cag tgg ttt tgg   acc ctg tta caa        53394
Asn Ser Lys Ser Pro Asn   Pro Gln Trp Phe Trp   Thr Leu Leu Gln
8750                8755                    8760

cgc aac cag atg ccg gca   gat aaa ctt aca cac   gaa gag att acc        53439
Arg Asn Gln Met Pro Ala   Asp Lys Leu Thr His   Glu Glu Ile Thr
8765                8770                    8775

act att gca gct gtt aaa   cgg ttt acc gag gaa   tat gca gca ata        53484
Thr Ile Ala Ala Val Lys   Arg Phe Thr Glu Glu   Tyr Ala Ala Ile
8780                8785                    8790

aac ttt att aat cta ccc   cca acc tgc ata gga   gaa tta gcc cag        53529
Asn Phe Ile Asn Leu Pro   Pro Thr Cys Ile Gly   Glu Leu Ala Gln
8795                8800                    8805

ttt tat atg gca aat ctt   att ctt aaa tac tgc   gat cat tca cag        53574
Phe Tyr Met Ala Asn Leu   Ile Leu Lys Tyr Cys   Asp His Ser Gln
8810                8815                    8820

tac ctt ata aat acc tta   act tct ata att acg   ggt gcc agg cgc        53619
Tyr Leu Ile Asn Thr Leu   Thr Ser Ile Ile Thr   Gly Ala Arg Arg
8825                8830                    8835

ccg cgt gac cca tca tcc   gtt ttg cat tgg att   cgt aaa gat gtc        53664
Pro Arg Asp Pro Ser Ser   Val Leu His Trp Ile   Arg Lys Asp Val
8840                8845                    8850

acg tcc gcc gcg gac ata   gaa acc caa gca aag   gcg ctt ctt gaa        53709
Thr Ser Ala Ala Asp Ile   Glu Thr Gln Ala Lys   Ala Leu Leu Glu
8855                8860                    8865

aaa acg gaa aac tta ccg   gaa tta tgg act acg   gct ttt act tca        53754
Lys Thr Glu Asn Leu Pro   Glu Leu Trp Thr Thr   Ala Phe Thr Ser
8870                8875                    8880

act cat tta gtc cgc gcg   gcc atg aat caa cgt   ccc atg gtc gtt        53799
Thr His Leu Val Arg Ala   Ala Met Asn Gln Arg   Pro Met Val Val
8885                8890                    8895

tta gga ata agc att agt   aaa tat cac gga gcg   gca gga aac aac        53844
Leu Gly Ile Ser Ile Ser   Lys Tyr His Gly Ala   Ala Gly Asn Asn
8900                8905                    8910

cgc gtc ttt cag gca ggg   aat tgg agc ggt tta   aac ggg ggt aaa        53889
Arg Val Phe Gln Ala Gly   Asn Trp Ser Gly Leu   Asn Gly Gly Lys
8915                8920                    8925

aat gta tgc ccg cta ttt   aca ttt gat cgc act   cgc cgt ttt ata        53934
Asn Val Cys Pro Leu Phe   Thr Phe Asp Arg Thr   Arg Arg Phe Ile
8930                8935                    8940

ata gca tgt cct aga gga   ggt ttt atc tgc ccc   gta aca ggt ccc        53979
Ile Ala Cys Pro Arg Gly   Gly Phe Ile Cys Pro   Val Thr Gly Pro
8945                8950                    8955

tcg tcg gga aat cga gaa   acc acc cta tcc gac   caa gtt cgc ggt        54024
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80

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Ser   Ser Gly Asn Arg Glu   Thr Thr Leu Ser Asp   Gln Val Arg Gly
8960              8965              8970

ata att gtc agt ggc ggg   gcc atg gtt caa tta   gcc ata tac gcc      54069
Ile Ile Val Ser Gly Gly   Ala Met Val Gln Leu   Ala Ile Tyr Ala
8975              8980              8985

acg gtt gtg cgt gca gtg   ggc gct cga gca caa   cat atg gca ttt      54114
Thr Val Val Arg Ala Val   Gly Ala Arg Ala Gln   His Met Ala Phe
8990              8995              9000

gac gac tgg tta agt ctt   aca gac gat gag ttt   tta gcc aga gac      54159
Asp Asp Trp Leu Ser Leu   Thr Asp Asp Glu Phe   Leu Ala Arg Asp
9005              9010              9015

ttg gag gag tta cac gac   cag att atc caa acc   ctg gaa acg ccc      54204
Leu Glu Glu Leu His Asp   Gln Ile Ile Gln Thr   Leu Glu Thr Pro
9020              9025              9030

tgg acc gta gaa ggc gct   cta gaa gca gta aag   att cta gat gaa      54249
Trp Thr Val Glu Gly Ala   Leu Glu Ala Val Lys   Ile Leu Asp Glu
9035              9040              9045

aaa acg aca gcg gga gat   ggg gaa acc ccc aca   aac cta gca ttt      54294
Lys Thr Thr Ala Gly Asp   Gly Glu Thr Pro Thr   Asn Leu Ala Phe
9050              9055              9060

aat ttt gat tct tgt gaa   cca agc cat gac acc   aca tct aac gta      54339
Asn Phe Asp Ser Cys Glu   Pro Ser His Asp Thr   Thr Ser Asn Val
9065              9070              9075

tta aac att tca ggg tca   aac att tca ggg tca   act gtc cct ggt      54384
Leu Asn Ile Ser Gly Ser   Asn Ile Ser Gly Ser   Thr Val Pro Gly
9080              9085              9090

ctt aaa cga ccc ccc gaa   gat gac gaa ctc ttt   gat ctt agt ggt      54429
Leu Lys Arg Pro Pro Glu   Asp Asp Glu Leu Phe   Asp Leu Ser Gly
9095              9100              9105

att ccc ata aaa cat ggg   aac att aca atg gaa   atg att taa          54471
Ile Pro Ile Lys His Gly   Asn Ile Thr Met Glu   Met Ile
9110              9115              9120

cctccctctt tatccaatta aagcccacac gcgggtgagt gtacgtaata aacaagtcaa   54531

tattacatat tctgttgtgt tttctttttt tgtgtgtagt ccttacccat atgacctgta   54591

atatagtgtg tctccaacca ttcagcttac agtccagtgg acagtaacag cccgataac    54650

atg gaa ttg   gat att aat cga aca   ttg ttg gtt cta ctg   ggt caa    54695
Met Glu Leu   Asp Ile Asn Arg Thr   Leu Leu Val Leu Leu   Gly Gln
       9125              9130              9135

gtt tat acg   tac atc ttt cag gtt   gaa ctg cta cgt cga   tgt gat    54740
Val Tyr Thr   Tyr Ile Phe Gln Val   Glu Leu Leu Arg Arg   Cys Asp
       9140              9145              9150
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81

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cca agg gtg  gcg tgt cgc ttt tta  tat cgg tta gcg gct  aac tgt      54785
Pro Arg Val  Ala Cys Arg Phe Leu  Tyr Arg Leu Ala Ala  Asn Cys
        9155                 9160                 9165

ttg aca gtt  cgt tat tta tta aag  ctg ttt ctc cgg gga  ttt aat      54830
Leu Thr Val  Arg Tyr Leu Leu Lys  Leu Phe Leu Arg Gly  Phe Asn
        9170                 9175                 9180

acc cag cta  aaa ttt gga aac act  ccc acg gtt tgt gca  ctg cat      54875
Thr Gln Leu  Lys Phe Gly Asn Thr  Pro Thr Val Cys Ala  Leu His
        9185                 9190                 9195

tgg gca tta  tgt tat gta aag gga  gaa ggt gag cgt ttg  ttt gag      54920
Trp Ala Leu  Cys Tyr Val Lys Gly  Glu Gly Glu Arg Leu  Phe Glu
        9200                 9205                 9210

ttg cta caa  cat ttt aaa acg cgt  ttt gtt tat ggt gag  act aaa      54965
Leu Leu Gln  His Phe Lys Thr Arg  Phe Val Tyr Gly Glu  Thr Lys
        9215                 9220                 9225

gac tca aac  tgt atc aaa gat tac  ttt gtc tca gcg ttt  aac tta      55010
Asp Ser Asn  Cys Ile Lys Asp Tyr  Phe Val Ser Ala Phe  Asn Leu
        9230                 9235                 9240

aaa acc tgc  caa tat cac cat gag  ctg tcg tta aca aca  tac gga      55055
Lys Thr Cys  Gln Tyr His His Glu  Leu Ser Leu Thr Thr  Tyr Gly
        9245                 9250                 9255

ggt tac gta  tcg agt gaa att cag  ttt tta cac gac att  gag aat      55100
Gly Tyr Val  Ser Ser Glu Ile Gln  Phe Leu His Asp Ile  Glu Asn
        9260                 9265                 9270

ttt tta aaa  cag ctt aat tac tgc  tat att atc acg tct  tct cgt      55145
Phe Leu Lys  Gln Leu Asn Tyr Cys  Tyr Ile Ile Thr Ser  Ser Arg
        9275                 9280                 9285

gag gcg cta  aac aca ttg gaa acc  gtg acg cgg ttt atg  aca gat      55190
Glu Ala Leu  Asn Thr Leu Glu Thr  Val Thr Arg Phe Met  Thr Asp
        9290                 9295                 9300

act ata gga  agc ggt cta ata cca  ccc gtg gag ttg ttt  gat ccg      55235
Thr Ile Gly  Ser Gly Leu Ile Pro  Pro Val Glu Leu Phe  Asp Pro
        9305                 9310                 9315

gcg cat cca  tgt gct ata tgt ttt  gaa gaa tta tgt ata  aca gct      55280
Ala His Pro  Cys Ala Ile Cys Phe  Glu Glu Leu Cys Ile  Thr Ala
        9320                 9325                 9330

aac caa ggt  gag acc tta cat cgt  aga tta tta gga tgt  atc tgc      55325
Asn Gln Gly  Glu Thr Leu His Arg  Arg Leu Leu Gly Cys  Ile Cys
        9335                 9340                 9345

gat cac gtt  act aag caa gtt cgg  gtt aac gtg gat gtt  gac gat      55370
Asp His Val  Thr Lys Gln Val Arg  Val Asn Val Asp Val  Asp Asp
        9350                 9355                 9360

att att cgg  tgt tta cca tat atc  cct gat gta ccg gat  atc aaa      55415
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82

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Ile Ile Arg  Cys Leu Pro Tyr Ile  Pro Asp Val Pro Asp  Ile Lys
        9365                  9370                  9375

cgt caa tcc  gcc gtt gaa gcg tta  cga aca ctt caa acc  aag acg      55460
Arg Gln Ser  Ala Val Glu Ala Leu  Arg Thr Leu Gln Thr  Lys Thr
        9380                  9385                  9390

gta gtc aat  ccc atg gga gca aag  aac gat acg ttt gac  caa aca      55505
Val Val Asn  Pro Met Gly Ala Lys  Asn Asp Thr Phe Asp  Gln Thr
        9395                  9400                  9405

tac gaa att  gcg agc acc atg ctt  gat tct tat aat gtt  ttt aaa      55550
Tyr Glu Ile  Ala Ser Thr Met Leu  Asp Ser Tyr Asn Val  Phe Lys
        9410                  9415                  9420

cct gcc cct  cgg tgt atg tac gcc  atc agc gag ctt aaa  ttc tgg      55595
Pro Ala Pro  Arg Cys Met Tyr Ala  Ile Ser Glu Leu Lys  Phe Trp
        9425                  9430                  9435

tta acg tct  aat tcc act gaa gga  ccc caa cgt act tta  gac gtg      55640
Leu Thr Ser  Asn Ser Thr Glu Gly  Pro Gln Arg Thr Leu  Asp Val
        9440                  9445                  9450

ttt gtt gat  aat ttg gat gta tta  aac gaa cat gaa aaa  cac gca      55685
Phe Val Asp  Asn Leu Asp Val Leu  Asn Glu His Glu Lys  His Ala
        9455                  9460                  9465

gaa ctt aca  gcc gta acg gtt gag  ttg gcg tta ttt gga  aaa act      55730
Glu Leu Thr  Ala Val Thr Val Glu  Leu Ala Leu Phe Gly  Lys Thr
        9470                  9475                  9480

ccc ata cac  ttt gat agg gcg ttt  tct gaa gaa ctc gga  tct ctg      55775
Pro Ile His  Phe Asp Arg Ala Phe  Ser Glu Glu Leu Gly  Ser Leu
        9485                  9490                  9495

gat gca att  gat agt att ttg gtt  ggc aat cgc tca tcc  tca cca      55820
Asp Ala Ile  Asp Ser Ile Leu Val  Gly Asn Arg Ser Ser  Ser Pro
        9500                  9505                  9510

gac agt cag  ata gaa gca tta att  aaa gcc tgt tat gcc  cat cat      55865
Asp Ser Gln  Ile Glu Ala Leu Ile  Lys Ala Cys Tyr Ala  His His
        9515                  9520                  9525

cta tcg tcg  cct ctc atg cgt cac  att tct aac ccg agt  cat gat      55910
Leu Ser Ser  Pro Leu Met Arg His  Ile Ser Asn Pro Ser  His Asp
        9530                  9535                  9540

aac gaa gcc  gcc tta cgc caa ctt  tta gaa aga gtt ggg  tgt gag      55955
Asn Glu Ala  Ala Leu Arg Gln Leu  Leu Glu Arg Val Gly  Cys Glu
        9545                  9550                  9555

gat gat tta  acc aaa gag gcg agt  gac agc gct aca gca  tcc gaa      56000
Asp Asp Leu  Thr Lys Glu Ala Ser  Asp Ser Ala Thr Ala  Ser Glu
        9560                  9565                  9570

tgt gat ctg  aac gat gat agt agc  ata act ttt gct gtt  cat gga      56045
Cys Asp Leu  Asn Asp Asp Ser Ser  Ile Thr Phe Ala Val  His Gly
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83

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            9575                    9580                    9585

tgg gaa aac  ctg tta tcc aaa gca  aaa att gac gct gcg  gaa aga    56090
Trp Glu Asn  Leu Leu Ser Lys Ala  Lys Ile Asp Ala Ala  Glu Arg
            9590                    9595                    9600

aaa cga gta  tat ctt gaa cat ctg  tct aag cgc tct cta  acc agc    56135
Lys Arg Val  Tyr Leu Glu His Leu  Ser Lys Arg Ser Leu  Thr Ser
            9605                    9610                    9615

ctc ggt aga  tgt atc cgc gaa cag  cgc caa gag cta gaa  aaa aca    56180
Leu Gly Arg  Cys Ile Arg Glu Gln  Arg Gln Glu Leu Glu  Lys Thr
            9620                    9625                    9630

ctc agg gta  aac gtt tat gga gag  gcc tta ttg cag aca  ttt gtt    56225
Leu Arg Val  Asn Val Tyr Gly Glu  Ala Leu Leu Gln Thr  Phe Val
            9635                    9640                    9645

tcg atg caa  aat ggg ttt ggg gca  cga aac gtg ttt tta  gct aag    56270
Ser Met Gln  Asn Gly Phe Gly Ala  Arg Asn Val Phe Leu  Ala Lys
            9650                    9655                    9660

gtt tcc cag  gca ggg tgt att atc  gac aat cgc att cag  gaa gcg    56315
Val Ser Gln  Ala Gly Cys Ile Ile  Asp Asn Arg Ile Gln  Glu Ala
            9665                    9670                    9675

gcc ttt gat  gca cat aga ttt ata  agg aat acc tta gtt  cga cat    56360
Ala Phe Asp  Ala His Arg Phe Ile  Arg Asn Thr Leu Val  Arg His
            9680                    9685                    9690

aca gta gat  gcg gct atg tta cct  gca ctt aca cat aaa  ttt ttt    56405
Thr Val Asp  Ala Ala Met Leu Pro  Ala Leu Thr His Lys  Phe Phe
            9695                    9700                    9705

gag ttg gtc  aac ggc cca ttg ttt  aat cac gat gaa cac  cgt ttt    56450
Glu Leu Val  Asn Gly Pro Leu Phe  Asn His Asp Glu His  Arg Phe
            9710                    9715                    9720

gca caa ccc  cct aac acc gcc tta  ttt ttt acc gtg gaa  aac gtt    56495
Ala Gln Pro  Pro Asn Thr Ala Leu  Phe Phe Thr Val Glu  Asn Val
            9725                    9730                    9735

ggc cta ttt  ccg cac tta aaa gag  gaa ttg gca aag ttt  atg ggc    56540
Gly Leu Phe  Pro His Leu Lys Glu  Glu Leu Ala Lys Phe  Met Gly
            9740                    9745                    9750

ggt gtc gtt  ggt tcc aac tgg ctt  ctc agt cca ttt agg  ggc ttt    56585
Gly Val Val  Gly Ser Asn Trp Leu  Leu Ser Pro Phe Arg  Gly Phe
            9755                    9760                    9765

tat tgc ttt  tct ggg gta gaa ggc  gtt act ttt gca cag  aga ctt    56630
Tyr Cys Phe  Ser Gly Val Glu Gly  Val Thr Phe Ala Gln  Arg Leu
            9770                    9775                    9780

gcc tgg aaa  tat att agg gag ctt  gtg ttt gca acc aca  cta ttc    56675
Ala Trp Lys  Tyr Ile Arg Glu Leu  Val Phe Ala Thr Thr  Leu Phe
            9785                    9790                    9795
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84

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acc tct gtt  ttc cat tgt ggg gag  gtg cgg tta tgt cgc  gtt gac        56720
Thr Ser Val  Phe His Cys Gly Glu  Val Arg Leu Cys Arg  Val Asp
        9800              9805              9810

cgt cta ggt  aag gat cca cgc ggg  tgc acg tct caa cct  aaa ggt        56765
Arg Leu Gly  Lys Asp Pro Arg Gly  Cys Thr Ser Gln Pro  Lys Gly
        9815              9820              9825

ata ggc agt  tcc cac gga ccc tta  gac ggc att tat tta  acg tac        56810
Ile Gly Ser  Ser His Gly Pro Leu  Asp Gly Ile Tyr Leu  Thr Tyr
        9830              9835              9840

gaa gaa aca  tgt ccc ctt gtg gct  att att caa agt gga  gaa aca        56855
Glu Glu Thr  Cys Pro Leu Val Ala  Ile Ile Gln Ser Gly  Glu Thr
        9845              9850              9855

ggg atc gac  cag aat acc gtc gta  atc tac gat tca gac  gtt ttt        56900
Gly Ile Asp  Gln Asn Thr Val Val  Ile Tyr Asp Ser Asp  Val Phe
        9860              9865              9870

tct ctt cta  tac acc cta atg cag  cgg ctg gct ccg gat  tca acg        56945
Ser Leu Leu  Tyr Thr Leu Met Gln  Arg Leu Ala Pro Asp  Ser Thr
        9875              9880              9885

gac ccg gcg  ttt tca taa cctccgttac gggggtgtgg ttatgctttt            56993
Asp Pro Ala  Phe Ser
        9890

tatgcatatt ttct atg ttt gtt  acg gcg gtt gtg tcg  gtc tct cca agc    57043
                Met Phe Val  Thr Ala Val Val Ser  Val Ser Pro Ser
                    9895              9900

tcg  ttt tat gag agt tta  caa gta gag ccc aca  caa tca gaa gat        57088
Ser  Phe Tyr Glu Ser Leu  Gln Val Glu Pro Thr  Gln Ser Glu Asp
9905              9910              9915

ata  acc cgg tct gct cat  ctg ggc gat ggt gat  gaa atc aga gaa        57133
Ile  Thr Arg Ser Ala His  Leu Gly Asp Gly Asp  Glu Ile Arg Glu
9920              9925              9930

gct  ata cac aag tcc cag  gac gcc gaa aca aaa  ccc acg ttt tac        57178
Ala  Ile His Lys Ser Gln  Asp Ala Glu Thr Lys  Pro Thr Phe Tyr
9935              9940              9945

gtc  tgc cca ccg cca aca  ggc tcc aca atc gta  cga tta gaa cca        57223
Val  Cys Pro Pro Pro Thr  Gly Ser Thr Ile Val  Arg Leu Glu Pro
9950              9955              9960

act  cgg aca tgt ccg gat  tat cac ctt ggt aaa  aac ttt aca gag        57268
Thr  Arg Thr Cys Pro Asp  Tyr His Leu Gly Lys  Asn Phe Thr Glu
9965              9970              9975

ggt  att gct gtt gtt tat  aaa gaa aac att gca  gcg tac aag ttt        57313
Gly  Ile Ala Val Val Tyr  Lys Glu Asn Ile Ala  Ala Tyr Lys Phe
9980              9985              9990
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85

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aag   gcg acg gta tat tac   aaa gat gtt atc gtt   agc acg gcg tgg   57358
Lys   Ala Thr Val Tyr Tyr   Lys Asp Val Ile Val   Ser Thr Ala Trp
9995                  10000                  10005

gcc   gga agt tct tat acg   caa att act aat aga   tat gcg gat agg   57403
Ala   Gly Ser Ser Tyr Thr   Gln Ile Thr Asn Arg   Tyr Ala Asp Arg
10010                 10015                  10020

gta   cca att ccc gtt tca   gag atc acg gac acc   att gat aag ttt   57448
Val   Pro Ile Pro Val Ser   Glu Ile Thr Asp Thr   Ile Asp Lys Phe
10025                 10030                  10035

ggc   aag tgt tct tct aaa   gca acg tac gta cga   aat aac cac aaa   57493
Gly   Lys Cys Ser Ser Lys   Ala Thr Tyr Val Arg   Asn Asn His Lys
10040                 10045                  10050

gtt   gaa gcc ttt aat gag   gat aaa aat cca cag   gat atg cct cta   57538
Val   Glu Ala Phe Asn Glu   Asp Lys Asn Pro Gln   Asp Met Pro Leu
10055                 10060                  10065

atc   gca tca aaa tat aat   tct gtg gga tcc aaa   gca tgg cat act   57583
Ile   Ala Ser Lys Tyr Asn   Ser Val Gly Ser Lys   Ala Trp His Thr
10070                 10075                  10080

acc   aat gac acg tac atg   gtt gcc gga acc ccc   gga aca tat agg   57628
Thr   Asn Asp Thr Tyr Met   Val Ala Gly Thr Pro   Gly Thr Tyr Arg
10085                 10090                  10095

acg   ggc acg tcg gtg aat   tgc atc att gag gaa   gtt gaa gcc aga   57673
Thr   Gly Thr Ser Val Asn   Cys Ile Ile Glu Glu   Val Glu Ala Arg
10100                 10105                  10110

tca   ata ttc cct tat gat   agt ttt gga ctt tcc   acg gga gat ata   57718
Ser   Ile Phe Pro Tyr Asp   Ser Phe Gly Leu Ser   Thr Gly Asp Ile
10115                 10120                  10125

ata   tac atg tcc ccg ttt   ttt ggc cta cgg gat   ggt gca tac aga   57763
Ile   Tyr Met Ser Pro Phe   Phe Gly Leu Arg Asp   Gly Ala Tyr Arg
10130                 10135                  10140

gaa   cat tcc aat tat gca   atg gat cgt ttt cac   cag ttt gag ggt   57808
Glu   His Ser Asn Tyr Ala   Met Asp Arg Phe His   Gln Phe Glu Gly
10145                 10150                  10155

tat   aga caa agg gat ctt   gac act aga gca tta   ctg gaa cct gca   57853
Tyr   Arg Gln Arg Asp Leu   Asp Thr Arg Ala Leu   Leu Glu Pro Ala
10160                 10165                  10170

gcg   cgg aac ttt tta gtc   acg cct cat tta acg   gtt ggt tgg aac   57898
Ala   Arg Asn Phe Leu Val   Thr Pro His Leu Thr   Val Gly Trp Asn
10175                 10180                  10185

tgg   aag cca aaa cga acg   gaa gtt tgt tcg ctt   gtc aag tgg cgt   57943
Trp   Lys Pro Lys Arg Thr   Glu Val Cys Ser Leu   Val Lys Trp Arg
10190                 10195                  10200

gag   gtt gaa gac gta gtt   cgc gat gag tat gca   cac aat ttt cgc   57988
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86

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Glu    Val Glu Asp Val Val   Arg Asp Glu Tyr Ala   His Asn Phe Arg
10205                  10210                10215

ttt    aca atg aaa aca ctt   tct acc acg ttt ata   agt gaa aca aac   58033
Phe    Thr Met Lys Thr Leu   Ser Thr Thr Phe Ile   Ser Glu Thr Asn
10220                  10225                10230

gag    ttt aat ctt aac caa   atc cat ctc agt caa   tgt gta aag gag   58078
Glu    Phe Asn Leu Asn Gln   Ile His Leu Ser Gln   Cys Val Lys Glu
10235                  10240                10245

gaa    gcc cgg gct att att   aac cgg atc tat aca   acc aga tac aac   58123
Glu    Ala Arg Ala Ile Ile   Asn Arg Ile Tyr Thr   Thr Arg Tyr Asn
10250                  10255                10260

tca    tct cat gtt aga acc   ggg gat atc cag acc   tac ctt gcc aga   58168
Ser    Ser His Val Arg Thr   Gly Asp Ile Gln Thr   Tyr Leu Ala Arg
10265                  10270                10275

ggg    ggg ttt gtt gtg gtg   ttt caa ccc ctg ctg   agc aat tcc ctc   58213
Gly    Gly Phe Val Val Val   Phe Gln Pro Leu Leu   Ser Asn Ser Leu
10280                  10285                10290

gcc    cgt ctc tat ctc caa   gaa ttg gtc cgt gaa   aac act aat cat   58258
Ala    Arg Leu Tyr Leu Gln   Glu Leu Val Arg Glu   Asn Thr Asn His
10295                  10300                10305

tca    cca caa aaa cac ccg   act cga aat acc aga   tcc cga cga agc   58303
Ser    Pro Gln Lys His Pro   Thr Arg Asn Thr Arg   Ser Arg Arg Ser
10310                  10315                10320

gtg    cca gtt gag ttg cgt   gcc aat aga aca ata   aca acc acc tca   58348
Val    Pro Val Glu Leu Arg   Ala Asn Arg Thr Ile   Thr Thr Thr Ser
10325                  10330                10335

tcg    gtg gaa ttt gct atg   ctc cag ttt aca tat   gac cac att caa   58393
Ser    Val Glu Phe Ala Met   Leu Gln Phe Thr Tyr   Asp His Ile Gln
10340                  10345                10350

gag    cat gtt aat gaa atg   ttg gca cgt atc tcc   tcg tcg tgg tgc   58438
Glu    His Val Asn Glu Met   Leu Ala Arg Ile Ser   Ser Ser Trp Cys
10355                  10360                10365

cag    cta caa aat cgc gaa   cgc gcc ctt tgg agc   gga cta ttt cca   58483
Gln    Leu Gln Asn Arg Glu   Arg Ala Leu Trp Ser   Gly Leu Phe Pro
10370                  10375                10380

att    aac cca agt gct tta   gcg agc acc att ttg   gat caa cgt gtt   58528
Ile    Asn Pro Ser Ala Leu   Ala Ser Thr Ile Leu   Asp Gln Arg Val
10385                  10390                10395

aaa    gct cgt att ctc ggc   gac gtt atc tcc gtt   tct aat tgt cca   58573
Lys    Ala Arg Ile Leu Gly   Asp Val Ile Ser Val   Ser Asn Cys Pro
10400                  10405                10410

gaa    ctg gga tca gat aca   cgc att ata ctt caa   aac tct atg agg   58618
Glu    Leu Gly Ser Asp Thr   Arg Ile Ile Leu Gln   Asn Ser Met Arg
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10415                    10420                        10425

gta  tct ggt agt act acg  cgt tgt tat agc cgt  cct tta att tca  58663
Val  Ser Gly Ser Thr Thr  Arg Cys Tyr Ser Arg  Pro Leu Ile Ser
10430                    10435                    10440

ata  gtt agt tta aat ggg  tcc ggg acg gtg gag  ggc cag ctt gga  58708
Ile  Val Ser Leu Asn Gly  Ser Gly Thr Val Glu  Gly Gln Leu Gly
10445                    10450                    10455

aca  gat aac gag tta att  atg tcc aga gat ctg  tta gaa cca tgc  58753
Thr  Asp Asn Glu Leu Ile  Met Ser Arg Asp Leu  Leu Glu Pro Cys
10460                    10465                    10470

gtg  gct aat cac aag cga  tat ttt cta ttt ggg  cat cac tac gta  58798
Val  Ala Asn His Lys Arg  Tyr Phe Leu Phe Gly  His His Tyr Val
10475                    10480                    10485

tat  tat gag gat tat cgt  tac gtc cgt gaa atc  gca gtc cat gat  58843
Tyr  Tyr Glu Asp Tyr Arg  Tyr Val Arg Glu Ile  Ala Val His Asp
10490                    10495                    10500

gtg  gga atg att agc act  tac gta gat tta aac  tta aca ctt ctt  58888
Val  Gly Met Ile Ser Thr  Tyr Val Asp Leu Asn  Leu Thr Leu Leu
10505                    10510                    10515

aaa  gat aga gag ttt atg  ccg ctg caa gta tat  aca aga gac gag  58933
Lys  Asp Arg Glu Phe Met  Pro Leu Gln Val Tyr  Thr Arg Asp Glu
10520                    10525                    10530

ctg  cgg gat aca gga tta  cta gac tac agt gaa  att caa cgc cga  58978
Leu  Arg Asp Thr Gly Leu  Leu Asp Tyr Ser Glu  Ile Gln Arg Arg
10535                    10540                    10545

aat  caa atg cat tcg ctg  cgt ttt tat gac ata  gac aag gtt gtg  59023
Asn  Gln Met His Ser Leu  Arg Phe Tyr Asp Ile  Asp Lys Val Val
10550                    10555                    10560

caa  tat gat agc gga acg  gcc att atg cag ggc  atg gct cag ttt  59068
Gln  Tyr Asp Ser Gly Thr  Ala Ile Met Gln Gly  Met Ala Gln Phe
10565                    10570                    10575

ttc  cag gga ctt ggg acc  gcg ggc cag gcc gtt  gga cat gtg gtt  59113
Phe  Gln Gly Leu Gly Thr  Ala Gly Gln Ala Val  Gly His Val Val
10580                    10585                    10590

ctt  ggg gcc acg gga gcg  ctg ctt tcc acc gta  cac gga ttt acc  59158
Leu  Gly Ala Thr Gly Ala  Leu Leu Ser Thr Val  His Gly Phe Thr
10595                    10600                    10605

acg  ttt tta tct aac cca  ttt ggg gca ttg gcc  gtg gga tta ttg  59203
Thr  Phe Leu Ser Asn Pro  Phe Gly Ala Leu Ala  Val Gly Leu Leu
10610                    10615                    10620

gtt  ttg gcg gga ctg gta  gcg gcc ttt ttt gcg  tac cgg tac gtg  59248
Val  Leu Ala Gly Leu Val  Ala Ala Phe Phe Ala  Tyr Arg Tyr Val
10625                    10630                    10635
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ctt   aaa ctt aaa aca agc   ccg atg aag gca tta   tat cca ctc aca   59293
Leu   Lys Leu Lys Thr Ser   Pro Met Lys Ala Leu   Tyr Pro Leu Thr
10640                 10645                 10650

acc   aag ggg tta aaa cag   tta ccg gaa gga atg   gat ccc ttt gcc   59338
Thr   Lys Gly Leu Lys Gln   Leu Pro Glu Gly Met   Asp Pro Phe Ala
10655                 10660                 10665

gag   aaa ccc aac gct act   gat acc cca ata gaa   gaa att ggc gac   59383
Glu   Lys Pro Asn Ala Thr   Asp Thr Pro Ile Glu   Glu Ile Gly Asp
10670                 10675                 10680

tca   caa aac act gaa ccg   tcg gta aat agc ggg   ttt gat ccc gat   59428
Ser   Gln Asn Thr Glu Pro   Ser Val Asn Ser Gly   Phe Asp Pro Asp
10685                 10690                 10695

aaa   ttt cga gaa gcc cag   gaa atg att aaa tat   atg acg tta gta   59473
Lys   Phe Arg Glu Ala Gln   Glu Met Ile Lys Tyr   Met Thr Leu Val
10700                 10705                 10710

tct   gcg gct gag cgc caa   gaa tct aaa gcc cgc   aaa aaa aat aag   59518
Ser   Ala Ala Glu Arg Gln   Glu Ser Lys Ala Arg   Lys Lys Asn Lys
10715                 10720                 10725

act   agc gcc ctt tta act   tca cgt ctt acc ggc   ctt gct tta cga   59563
Thr   Ser Ala Leu Leu Thr   Ser Arg Leu Thr Gly   Leu Ala Leu Arg
10730                 10735                 10740

aat   cgc cga gga tac tcc   cgt gtt cgc acc gag   aat gta acg ggg   59608
Asn   Arg Arg Gly Tyr Ser   Arg Val Arg Thr Glu   Asn Val Thr Gly
10745                 10750                 10755

gtg   taa atagccaggg ggtttgtttt aatttattaa taaaaatgtg tattacgtta   59664
Val
10760

ctcatgtgtc tccattacgc atcacagggg gtatttatac ccgataatat acaaaacgcg   59724

ttttgtacct ctaccgcacc cgatatctta acggggttat t atg gaa tcg tct   59777
                                            Met Glu Ser Ser

aac   att aac gcg cta caa   caa ccg tcg tct atc   gca cat cat ccg   59822
Asn   Ile Asn Ala Leu Gln   Gln Pro Ser Ser Ile   Ala His His Pro
10765                 10770                 10775

tcc   aaa cag tgc gct tca   agt ctc aat gaa aca   gta aaa gat tct   59867
Ser   Lys Gln Cys Ala Ser   Ser Leu Asn Glu Thr   Val Lys Asp Ser
10780                 10785                 10790

ccc   ccc gcg att tat gaa   gat agg tta gaa cac   acg ccg gta caa   59912
Pro   Pro Ala Ile Tyr Glu   Asp Arg Leu Glu His   Thr Pro Val Gln
10795                 10800                 10805

tta   ccc cgc gac ggt aca   ccc cga gac gta tgt   tct gtg gga cag   59957
Leu   Pro Arg Asp Gly Thr   Pro Arg Asp Val Cys   Ser Val Gly Gln
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cta   acc tgt cga gca tgt   gca acg aaa cct ttt   cgc ctt aac cgc   60002
Leu   Thr Cys Arg Ala Cys   Ala Thr Lys Pro Phe   Arg Leu Asn Arg
10825                     10830                    10835

gac   agc caa tac gac tac   tta aac aca tgt cca   ggg ggc cgt cat   60047
Asp   Ser Gln Tyr Asp Tyr   Leu Asn Thr Cys Pro   Gly Gly Arg His
10840                     10845                    10850

att   tca ctg gca ctg gag   att ata acg ggt cga   tgg gtt tgc atc   60092
Ile   Ser Leu Ala Leu Glu   Ile Ile Thr Gly Arg   Trp Val Cys Ile
10855                     10860                    10865

ccg   cgt gtg ttt ccg gat   acc cca gag gaa aaa   tgg atg gcg cca   60137
Pro   Arg Val Phe Pro Asp   Thr Pro Glu Glu Lys   Trp Met Ala Pro
10870                     10875                    10880

tat   att att cca gac cga   gaa caa cca tca tca   ggg gat gaa gat   60182
Tyr   Ile Ile Pro Asp Arg   Glu Gln Pro Ser Ser   Gly Asp Glu Asp
10885                     10890                    10895

tct   gac acc gat taa atttaactta aataaaacct taccacccat aaaaacgcct   60237
Ser   Asp Thr Asp
10900
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tctgtttgtt taacacgaca ccgcttaaca aaaaaaaaaa aaccaaacac gccttttatg   60297

aatgtaatac ttttatttgt tggttaacac cgccccacca tcatctgatt tgcaaacata   60357

tcggcgtcgt ctgccgtgga cccctgtatt aaaggggcct tggaactcgc ctccactgca   60417

tttacatctt gtccaactgt atctgtatgt ggggtgcttg ttgtattttg ggatgagcat   60477

agacccgaaa cgctttgaag ctgtttttaat aaaatcgata ttcgaggatc ccgtgtcccc   60537

tctggtatat ttgtatggtg cgacaaaggc atttgtgtcc cattttgtga ttttagctct   60597

gtaacctcct gttgcagttt tgccacaacc ccagcaagct cttcgtgctg accattagaa   60657

actctgtgtc tcctctgcca atatgatgga gaaactcgac gtctccgatg cgttatatac   60717

gttggttcac cgggaaaata tatatttgag ggaaactctc cgtccatttg agactcccca   60777

ctataaaaag aatccaattc cctttgatcc atgctcttga atcccgtttt cctggacga   60837

cggacatcgg ttttgtctgg aaaatttaca cacggggtct gcaagtcaat accccgttcg   60897

gcggccaatg cgttcataaa tgcggacatt tgcatttcca aacgattggg tggtggatat   60957

cccggaaacc cgtacggtcc cccgaagtgt cccggagggc aaccataacc ccctgtatta   61017

ggtgggaagg caggcgggtg tggagatcca tatggcccga cgatatactg tccgttattt   61077

ggagctccaa ttgatacctg cggatttta gtctgcccgg ttaacagctg tgataatac   61137

gcggtaggta tcagtacaaa ttcccctccg gttggaacgc ccgacggggg ctgtggtgag   61197
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atattactag cgttacctgc tacagaagcc atatcgctgt cgttcctaca caactgcgta  61257

acctttaaat gcggaacagt cttttcacaa tcttcatttg attccccaac acccaacgcg  61317

agatcgtata tgggcccgcc ggggtggaat gtggcgttta taacacccgc gttgggtaat  61377

ttagactcca ccccattaac gttggttatc cgagcaagtc catatccggt gctagcctga  61437

agataaacgt gacccataat tccggcttcg cgtctacgtt ttgcaaccac gtcccatcta  61497

tctcttaaaa gcatattgtt cacggctgtg dataataaca ccttggcgag tttatcttcg  61557

ctaaccttcc atactttatt taaacccgcg tagtctttaa ccagcgacaa taaccgcgct  61617

ttactttcca tcgataaaac ccggaatggt tcaattgaag attccggggt acagtcataa  61677

ttgaccactg ttccaacgcg tcttccaaca acacataacg caacatgggt aaaaaaatta  61737

ccgtctggta tctcattcgg ggacaatcgt tttgaagaca gggatacgga gggtaagtaa  61797

tttgtgacca agtataacgc acgttctagc ggagataata cagaatctct atttccaaaa  61857

aaattcgaat gggccgcttc aaacagcacc gcatgtagtt gagggcatct aacgataccc  61917

aaaaaaaaag gtccgcgtat gtcctcaatg attgcgatta cttcacccac gacacagtct  61977

tttcgatgat cgatgtttat tggtatttta ctagtaggcg gcaaagcgga ccgcacaatc  62037

tctggggtaa tatttaattc cccttcgtcc tttgaatata aggctaaata cccagccacg  62097

tataacgctt cacagttctc ttcgtcagct tcagcagcca ttataaacac cccacggacc  62157

ggatagtgaa tactcacggt gtggaggcaa actgaggaat gacacccaaa cagacaaaat  62217

atagaagatc atagtcactg ttaacgttga actgcgcaag gcggcgactt tcttccaatg  62277

ccgcccttac acgcggttgg tgcattaaca ttccaagtcc ccgttcatat tgcaacataa  62337

cactgtcatg tattgatacc acggcggcta tgggtaggga tgtaacattt tgtcggcggt  62397

gttctaattc caatgcaatt aagcttatga gccgatcttg gtactgtcca gaagaaatat  62457

ctattacggt tcttcctaaa cttccacgac taagctgggt atgcgcgtct aaacaaagag  62517

caactaatcc aggaaacatt tcagtcagct ctgtggtccg atttaacgta tacagtggtg  62577

ctatatatcg ttcacataaa aattgaaagt tattattacc gcttttaaac ttcccatcaa  62637

accccgtcgc tccgcgcaag attacattgt tggtaggggt tcctgttgct tctgacacaa  62697

tcaaacccag ttgaaaatta tttttagtt tatctccgta tacgttcccg ttccataata  62757

agcgccttaa taataataac gccgtaatcg tgtcaattgt taaccttaat agagtttggt  62817

cttccataag aaacacgttt tgggcccgtt ctaaatacgc cgcggccgcc tgttgaatct  62877
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tgtccacata tgcggtatga ttgcgatcaa taatgtcatt aaccccagga ttaaactgtc 62937

caggtgcagg cggtaggacc tgcaaccgta taagcgcatc cataacagaa tgtgacgtta 62997

aggcgccttg atcataccgc cccccacgag catgaaactg gtcgcgtggt agacgatcat 63057

agcaaaattg ataactgttt ttattttcgt gtgttgtcat ataattcaca aatgtctcag 63117

tatattccgg taggtgctct ataaggttcc cgaaggacga aacttgaggt tcgtggacac 63177

tattagatgt cctatacatt aaatataaac ataataccgc acactcgaac gcggagtacg 63237

ctctatctcc aacatacatt ctcccggcgg actgtagaca tgttaccgtt gtgttcataa 63297

acgtacggga aatgcgcccg tctttacaat caactccgcg tgcagctacg ggcctatcta 63357

acacaagccg ttcctgcaga gtacgatacc atggcccgaa aacaatccct ggagagttat 63417

tgcccttgc ccttcccaag tacaccaggg tgataaaatc cacttgaaag tttgtatcgt 63477

actgcaacgg tgcatcattt ttggcaatct gtacctcggg gtgtatagac tcattgcgta 63537

ttatttctgt acgtgtacat tcctcagatt gtgcatctgc ttcttccgcc tcggcagcag 63597

ccgtctccag ggaatccaaa accttggcca tgcgcgttag ttgttcttcg aggggcttta 63657

aacgacgatc tatttccgtt ggtaacgtaa tcgtttcccc gcgaaggttg tctaatgcgg 63717

caacggccgc cgcatttttt aacgttaacg tattttttc caaatcggga ttcatacgcc 63777

ctcttaactc aaacgcggga gccgtccagt agtgtatggg gaagttgggg gctataaagt 63837

tcttagtggt agacaaaaat atcccacatt tattcggaaa cgagatagat ccgaacccat 63897

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caccacaagc acctaaagaa ggccttctaa ggggtaaatc caccccacaa gctgcatttt 64077

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tagcgctaaa acggcaagat tttaattcca ctataaaaca aacggtcttt ccggcaccac 64497

tggattccgt ttgtataata caaacacaat cggggcgtcg gcgtcccaaa tttacttcaa 64557

acgacattga tatgcgtaca gcccttttgaa catccacgtg ggataacggc gacaggagtt 64617

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ttgccagcct cgggttgaac gcgtccgcga aacctcgacg tacgttatca atatcctttt   64677

tgagtacatc gtaaaaacga gtgtggcaac gttgtcccaa acgaaaacac ttggcccgaa   64737

ttcgactagc ggacatattt gaagttccgt cccagaagat aacctaagac gcgtttgtct   64797

acaataaac atg tca    acg gat aaa acc gat   gta aaa atg ggc gtt       64842
          Met Ser    Thr Asp Lys Thr Asp   Val Lys Met Gly Val
             10905                  10910              10915

ttg cgt att tat ttg   gac ggg gcg tat gga   att gga aaa aca acc     64887
Leu Arg Ile Tyr Leu   Asp Gly Ala Tyr Gly   Ile Gly Lys Thr Thr
            10920                  10925              10930

gcc gcc gaa gaa ttt   tta cac cac ttt gca   ata aca cca aac cgg     64932
Ala Ala Glu Glu Phe   Leu His His Phe Ala   Ile Thr Pro Asn Arg
            10935                  10940              10945

atc tta ctc att ggg   gag ccc ctg tcg tat   tgg cgt aac ctt gca     64977
Ile Leu Leu Ile Gly   Glu Pro Leu Ser Tyr   Trp Arg Asn Leu Ala
            10950                  10955              10960

ggg gag gac gcc att   tgc gga att tac gga   aca caa act cgc cgt     65022
Gly Glu Asp Ala Ile   Cys Gly Ile Tyr Gly   Thr Gln Thr Arg Arg
            10965                  10970              10975

ctt aat gga gac gtt   tcg cct gaa gac gca   caa cgc ctc acg gct     65067
Leu Asn Gly Asp Val   Ser Pro Glu Asp Ala   Gln Arg Leu Thr Ala
            10980                  10985              10990

cat ttt cag agc ctg   ttc tgt tct ccg cat   gca att atg cat gcg     65112
His Phe Gln Ser Leu   Phe Cys Ser Pro His   Ala Ile Met His Ala
            10995                  11000              11005

aaa atc tcg gca ttg   atg gac aca agt aca   tcg gat ctc gta caa     65157
Lys Ile Ser Ala Leu   Met Asp Thr Ser Thr   Ser Asp Leu Val Gln
            11010                  11015              11020

gta aat aag gag ccg   tat aaa att atg tta   tcc gac cga cac cca     65202
Val Asn Lys Glu Pro   Tyr Lys Ile Met Leu   Ser Asp Arg His Pro
            11025                  11030              11035

atc gcc tca act ata   tgt ttt ccc ttg tcc   aga tac tta gtg gga     65247
Ile Ala Ser Thr Ile   Cys Phe Pro Leu Ser   Arg Tyr Leu Val Gly
            11040                  11045              11050

gat atg tcc cca gcg   gcg ctt cct ggg tta   ttg ttt acg ctt ccc     65292
Asp Met Ser Pro Ala   Ala Leu Pro Gly Leu   Leu Phe Thr Leu Pro
            11055                  11060              11065

gct gaa ccc ccc ggg   acc aac ttg gta gtt   tgt acc gtt tca ctc     65337
Ala Glu Pro Pro Gly   Thr Asn Leu Val Val   Cys Thr Val Ser Leu
            11070                  11075              11080

ccc agt cat tta tcc   aga gta agc aaa cgg   gcc aga ccg gga gaa     65382
Pro Ser His Leu Ser   Arg Val Ser Lys Arg   Ala Arg Pro Gly Glu
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                11085                      11090                      11095

acg gtt aat ctg ccg    ttt gtt atg gtt ctg    aga aat gta tat ata    65427
Thr Val Asn Leu Pro    Phe Val Met Val Leu    Arg Asn Val Tyr Ile
            11100                      11105                      11110

atg ctt att aat aca    att ata ttt ctt aaa    act aac aac tgg cac    65472
Met Leu Ile Asn Thr    Ile Ile Phe Leu Lys    Thr Asn Asn Trp His
            11115                      11120                      11125

gcg ggc tgg aac aca    ctg tca ttt tgt aat    gat gta ttt aaa cag    65517
Ala Gly Trp Asn Thr    Leu Ser Phe Cys Asn    Asp Val Phe Lys Gln
            11130                      11135                      11140

aaa tta caa aaa tcc    gag tgt ata aaa cta    cgc gaa gta cct ggg    65562
Lys Leu Gln Lys Ser    Glu Cys Ile Lys Leu    Arg Glu Val Pro Gly
            11145                      11150                      11155

att gaa gac acg tta    ttc gcc gtg ctt aaa    ctt ccg gag ctt tgc    65607
Ile Glu Asp Thr Leu    Phe Ala Val Leu Lys    Leu Pro Glu Leu Cys
            11160                      11165                      11170

gga gag ttt gga aat    att ctg ccg tta tgg    gca tgg gga atg gag    65652
Gly Glu Phe Gly Asn    Ile Leu Pro Leu Trp    Ala Trp Gly Met Glu
            11175                      11180                      11185

acc ctt tca aac tgc    tca cga agc atg tct    ccg ttc gta tta tcg    65697
Thr Leu Ser Asn Cys    Ser Arg Ser Met Ser    Pro Phe Val Leu Ser
            11190                      11195                      11200

tta gaa cag aca ccc    cag cat gcg gca caa    gaa cta aaa act ctg    65742
Leu Glu Gln Thr Pro    Gln His Ala Ala Gln    Glu Leu Lys Thr Leu
            11205                      11210                      11215

cta ccc cag atg acc    ccg gca aac atg tcc    tcc ggt gca tgg aat    65787
Leu Pro Gln Met Thr    Pro Ala Asn Met Ser    Ser Gly Ala Trp Asn
            11220                      11225                      11230

ata ttg aaa gag ctt    gtt aat gcc gtt cag    gac aac act tcc taa    65832
Ile Leu Lys Glu Leu    Val Asn Ala Val Gln    Asp Asn Thr Ser
            11235                      11240

atatacctag tatttacgta tgtaccagta aaaagatgat acacattgtc atactcgcgt    65892

gtacgtgttt ttcttttttta tatatgcgtc atttattacc acatccttta atcccgcctt    65952

tatctcccta aaacggagtg gtaatattaa aagccgccaa gcctgttggt gggtgaggag    66012

gggtaaaggc acgctgtgtg cataacgttg cggtgatatt gtagcgcaag taacagcgac    66072

t atg    ttt gcg cta gtt tta    gcg gtg gta att ctt    cct ctt tgg    66115
  Met    Phe Ala Leu Val Leu    Ala Val Val Ile Leu    Pro Leu Trp
 11245                      11250                      11255

acc acg    gct aat aaa tct tac    gta aca cca acc cct    gcg act cgc    66160
Thr Thr    Ala Asn Lys Ser Tyr    Val Thr Pro Thr Pro    Ala Thr Arg
   11260                      11265                      11270
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tct atc    gga cat atg tct gct    ctt cta cga gaa tat    tcc gac cgt    66205
Ser Ile    Gly His Met Ser Ala    Leu Leu Arg Glu Tyr    Ser Asp Arg
    11275                  11280                  11285

aat atg    tct ctg aaa tta gaa    gcc ttt tat cct act    ggt ttc gat    66250
Asn Met    Ser Leu Lys Leu Glu    Ala Phe Tyr Pro Thr    Gly Phe Asp
    11290                  11295                  11300

gaa gaa    ctc att aaa tca ctt    cac tgg gga aat gat    aga aaa cac    66295
Glu Glu    Leu Ile Lys Ser Leu    His Trp Gly Asn Asp    Arg Lys His
    11305                  11310                  11315

gtt ttc    ttg gtt att gtt aag    gtt aac cct aca aca    cac gaa gga    66340
Val Phe    Leu Val Ile Val Lys    Val Asn Pro Thr Thr    His Glu Gly
    11320                  11325                  11330

gac gtc    ggg ctg gtt ata ttt    cca aaa tac ttg tta    tcg cca tac    66385
Asp Val    Gly Leu Val Ile Phe    Pro Lys Tyr Leu Leu    Ser Pro Tyr
    11335                  11340                  11345

cat ttc    aaa gca gaa cat cga    gca ccg ttt cct gct    gga cgt ttt    66430
His Phe    Lys Ala Glu His Arg    Ala Pro Phe Pro Ala    Gly Arg Phe
    11350                  11355                  11360

gga ttt    ctt agt cac cct gtg    aca ccc gac gtg agc    ttc ttt gac    66475
Gly Phe    Leu Ser His Pro Val    Thr Pro Asp Val Ser    Phe Phe Asp
    11365                  11370                  11375

agt tcg    ttt gcg ccg tat tta    act acg caa cat ctt    gtt gcg ttt    66520
Ser Ser    Phe Ala Pro Tyr Leu    Thr Thr Gln His Leu    Val Ala Phe
    11380                  11385                  11390

act acg    ttc cca cca aac ccc    ctt gta tgg cat ttg    gaa aga gct    66565
Thr Thr    Phe Pro Pro Asn Pro    Leu Val Trp His Leu    Glu Arg Ala
    11395                  11400                  11405

gag acc    gca gca act gca gaa    agg ccg ttt ggg gta    agt ctt tta    66610
Glu Thr    Ala Ala Thr Ala Glu    Arg Pro Phe Gly Val    Ser Leu Leu
    11410                  11415                  11420

ccc gct    cgc cca aca gtc ccc    aag aat act att ctg    gaa cat aaa    66655
Pro Ala    Arg Pro Thr Val Pro    Lys Asn Thr Ile Leu    Glu His Lys
    11425                  11430                  11435

gcg cat    ttt gct aca tgg gat    gcc ctt gcc cga cat    act ttt ttt    66700
Ala His    Phe Ala Thr Trp Asp    Ala Leu Ala Arg His    Thr Phe Phe
    11440                  11445                  11450

tct gcc    gaa gca att atc acc    aac tca acg ttg aga    ata cac gtt    66745
Ser Ala    Glu Ala Ile Ile Thr    Asn Ser Thr Leu Arg    Ile His Val
    11455                  11460                  11465

ccc ctt    ttt ggg tcg gta tgg    cca att cga tac tgg    gcc acc ggt    66790
Pro Leu    Phe Gly Ser Val Trp    Pro Ile Arg Tyr Trp    Ala Thr Gly
    11470                  11475                  11480
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tcg gtg   ctt ctc aca agc gac   tcg ggt cgt gtg gaa   gta aat att   66835
Ser Val   Leu Leu Thr Ser Asp   Ser Gly Arg Val Glu   Val Asn Ile
    11485                 11490                 11495

ggt gta   gga ttt atg agc tcg   ctc att tct tta tcc   tct gga cca   66880
Gly Val   Gly Phe Met Ser Ser   Leu Ile Ser Leu Ser   Ser Gly Pro
    11500                 11505                 11510

ccg ata   gaa tta att gtt gta   cca cat aca gta aaa   ctg aac gcg   66925
Pro Ile   Glu Leu Ile Val Val   Pro His Thr Val Lys   Leu Asn Ala
    11515                 11520                 11525

gtt aca   agc gac acc aca tgg   ttc cag cta aat cca   ccg ggt ccg   66970
Val Thr   Ser Asp Thr Thr Trp   Phe Gln Leu Asn Pro   Pro Gly Pro
    11530                 11535                 11540

gat ccg   ggg cca tct tat cga   gtt tat tta ctt gga   cgt ggg ttg   67015
Asp Pro   Gly Pro Ser Tyr Arg   Val Tyr Leu Leu Gly   Arg Gly Leu
    11545                 11550                 11555

gat atg   aat ttt tca aag cat   gct acg gtc gat ata   tgc gca tat   67060
Asp Met   Asn Phe Ser Lys His   Ala Thr Val Asp Ile   Cys Ala Tyr
    11560                 11565                 11570

ccc gaa   gag agt ttg gat tac   cgc tat cat tta tcc   atg gcc cac   67105
Pro Glu   Glu Ser Leu Asp Tyr   Arg Tyr His Leu Ser   Met Ala His
    11575                 11580                 11585

acg gag   gct ctg cgg atg aca   acg aag gcg gat caa   cat gac ata   67150
Thr Glu   Ala Leu Arg Met Thr   Thr Lys Ala Asp Gln   His Asp Ile
    11590                 11595                 11600

aac gag   gaa agc tat tac cat   atc gcc gca aga ata   gcc aca tca   67195
Asn Glu   Glu Ser Tyr Tyr His   Ile Ala Ala Arg Ile   Ala Thr Ser
    11605                 11610                 11615

att ttt   gcg ttg tcg gaa atg   ggc cgt acc aca gaa   tat ttt ctg   67240
Ile Phe   Ala Leu Ser Glu Met   Gly Arg Thr Thr Glu   Tyr Phe Leu
    11620                 11625                 11630

tta gat   gag atc gta gat gtt   cag tat caa tta aaa   ttc ctt aat   67285
Leu Asp   Glu Ile Val Asp Val   Gln Tyr Gln Leu Lys   Phe Leu Asn
    11635                 11640                 11645

tac att   tta atg cgg ata gga   gca gga gct cat ccc   aac act ata   67330
Tyr Ile   Leu Met Arg Ile Gly   Ala Gly Ala His Pro   Asn Thr Ile
    11650                 11655                 11660

tcc gga   acc tcg gat ctg atc   ttt gcc gat cca tcg   cag ctt cat   67375
Ser Gly   Thr Ser Asp Leu Ile   Phe Ala Asp Pro Ser   Gln Leu His
    11665                 11670                 11675

gac gaa   ctt tca ctt ctt ttt   ggt cag gta aaa ccc   gca aat gtc   67420
Asp Glu   Leu Ser Leu Leu Phe   Gly Gln Val Lys Pro   Ala Asn Val
    11680                 11685                 11690

gat tat   ttt att tca tat gat   gaa gcc cgt gat caa   cta aag acc   67465
Asp Tyr   Phe Ile Ser Tyr Asp   Glu Ala Arg Asp Gln   Leu Lys Thr
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Asp Tyr   Phe Ile Ser Tyr Asp   Glu Ala Arg Asp Gln   Leu Lys Thr
    11695                 11700                 11705

gca tac   gcg ctt tcc cgt ggt   caa gac cat gtg aat   gca ctt tct   67510
Ala Tyr   Ala Leu Ser Arg Gly   Gln Asp His Val Asn   Ala Leu Ser
    11710                 11715                 11720

ctc gcc   agg cgt gtt ata atg   agc ata tac aag ggg   ctg ctt gtg   67555
Leu Ala   Arg Arg Val Ile Met   Ser Ile Tyr Lys Gly   Leu Leu Val
    11725                 11730                 11735

aag caa   aat tta aat gct aca   gag agg cag gct tta   ttt ttt gcc   67600
Lys Gln   Asn Leu Asn Ala Thr   Glu Arg Gln Ala Leu   Phe Phe Ala
    11740                 11745                 11750

tca atg   att tta tta aat ttc   cgc gaa gga cta gaa   aat tca tct   67645
Ser Met   Ile Leu Leu Asn Phe   Arg Glu Gly Leu Glu   Asn Ser Ser
    11755                 11760                 11765

cgg gta   tta gac ggt cgc aca   act ttg ctt tta atg   aca tcc atg   67690
Arg Val   Leu Asp Gly Arg Thr   Thr Leu Leu Leu Met   Thr Ser Met
    11770                 11775                 11780

tgt acg   gca gct cac gcc acg   caa gca gca ctt aac   ata caa gaa   67735
Cys Thr   Ala Ala His Ala Thr   Gln Ala Ala Leu Asn   Ile Gln Glu
    11785                 11790                 11795

ggc ctg   gca tac tta aat cct   tca aaa cac atg ttt   aca ata cca   67780
Gly Leu   Ala Tyr Leu Asn Pro   Ser Lys His Met Phe   Thr Ile Pro
    11800                 11805                 11810

aac gta   tac agt cct tgt atg   ggt tcc ctt cgt aca   gac ctc acg   67825
Asn Val   Tyr Ser Pro Cys Met   Gly Ser Leu Arg Thr   Asp Leu Thr
    11815                 11820                 11825

gaa gag   att cat gtt atg aat   ctc ctg tcg gca ata   cca aca cgc   67870
Glu Glu   Ile His Val Met Asn   Leu Leu Ser Ala Ile   Pro Thr Arg
    11830                 11835                 11840

cca gga   ctt aac gag gta ttg   cat acc caa cta gac   gaa tct gaa   67915
Pro Gly   Leu Asn Glu Val Leu   His Thr Gln Leu Asp   Glu Ser Glu
    11845                 11850                 11855

ata ttc   gac gcg gca ttt aaa   acc atg atg att ttt   acc aca tgg   67960
Ile Phe   Asp Ala Ala Phe Lys   Thr Met Met Ile Phe   Thr Thr Trp
    11860                 11865                 11870

act gcc   aaa gat ttg cat ata   ctc cac acc cat gta   cca gaa gta   68005
Thr Ala   Lys Asp Leu His Ile   Leu His Thr His Val   Pro Glu Val
    11875                 11880                 11885

ttt acg   tgt caa gat gca gcc   gcg cgt aac gga gaa   tat gtg ctc   68050
Phe Thr   Cys Gln Asp Ala Ala   Ala Arg Asn Gly Glu   Tyr Val Leu
    11890                 11895                 11900

att ctt   cca gct gtc cag gga   cac agt tat gtg att   aca cga aac   68095
Ile Leu   Pro Ala Val Gln Gly   His Ser Tyr Val Ile   Thr Arg Asn
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aaa cct caa agg ggt ttg gta tat tcc ctg gca gat gtg gat gta 68140
Lys Pro Gln Arg Gly Leu Val Tyr Ser Leu Ala Asp Val Asp Val
     11920   11925   11930

tat aac ccc ata tcc gtt gtt tat tta agc agg gat act tgc gtg 68185
Tyr Asn Pro Ile Ser Val Val Tyr Leu Ser Arg Asp Thr Cys Val
     11935   11940   11945

tct gaa cat ggt gtc ata gag acg gtc gca ctg ccc cat ccg gac 68230
Ser Glu His Gly Val Ile Glu Thr Val Ala Leu Pro His Pro Asp
     11950   11955   11960

aat tta aaa gaa tgt ttg tat tgc gga agt gtt ttt ctt agg tat 68275
Asn Leu Lys Glu Cys Leu Tyr Cys Gly Ser Val Phe Leu Arg Tyr
     11965   11970   11975

cta acc acg ggg gcg att atg gat ata att att att gac agc aaa 68320
Leu Thr Thr Gly Ala Ile Met Asp Ile Ile Ile Ile Asp Ser Lys
     11980   11985   11990

gat aca gaa cga caa cta gcc gct atg gga aac tcc aca att cca 68365
Asp Thr Glu Arg Gln Leu Ala Ala Met Gly Asn Ser Thr Ile Pro
     11995   12000   12005

ccc ttc aat cca gac atg cac ggg gat gac tct aag gct gtg ttg 68410
Pro Phe Asn Pro Asp Met His Gly Asp Asp Ser Lys Ala Val Leu
     12010   12015   12020

ttg ttt cca aac gga act gtg gta acg ctt cta gga ttc gaa cga 68455
Leu Phe Pro Asn Gly Thr Val Val Thr Leu Leu Gly Phe Glu Arg
     12025   12030   12035

cga caa gcc ata cga atg tcg gga caa tac ctt ggg gcc tct tta 68500
Arg Gln Ala Ile Arg Met Ser Gly Gln Tyr Leu Gly Ala Ser Leu
     12040   12045   12050

gga ggg gcg ttt ctg gcg gta gtg ggg ttt ggt att atc gga tgg 68545
Gly Gly Ala Phe Leu Ala Val Val Gly Phe Gly Ile Ile Gly Trp
     12055   12060   12065

atg tta tgt gga aat tcc cgc ctt cga gaa tat aat aaa ata cct 68590
Met Leu Cys Gly Asn Ser Arg Leu Arg Glu Tyr Asn Lys Ile Pro
     12070   12075   12080

ctg aca taa aaaacatgta taataaaag tcactataaa cgtattctct   68639
Leu Thr
     12085

acaatacttt attcgcgaat aatacacact acctttgggt ttttttcccg tccccaaatg 68699

gtgtttggtg cactctacca aaaaatagag cgcctaaata tgctatataa cgcctcccag 68759

caaaatacgg ttcaaaggca ttacccgata ttgtattgta gtacagggca atgggaattg 68819

atgatcccaa taaacggcat agacgcacag cgccgttata gcaggggtct ccagagtaca 68879

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gggtatctaa gtaccgggat atctcatact catgcctttc cgtgacagaa acatcaaccg   68939

gaacagtatc cgataaacca actcctgttt ttgcaaggcg taaaattcgc acaccttcct   68999

tttttgcaag atgtgacgtt tccttgtaac agggaagctg ggggagtggt aagaacaaca   69059

aagtttcagc caacgtgcca ataaagccca cttccctcaa gaggctgttt gctgtatcca   69119

caatggtccg tattaaatct tgagcaactt gatccgtgtc atcatcactg ggtaacgcgt   69179

taacataact acgcgttaaa tcttcaataa cggcataaca attaaacgct tcccaccgag   69239

acagtatata ttgaacaatc acgaaccgtt gacaggacgt cagatcacgt ccgtaagcat   69299

gcccgaaaaa tggaagttcc ccccgttcgc catataccgc aacaactgca gtatatatcg   69359

tctcacgggc ttcattaagt tcatcttcaa gtccaggcca ttttctggct ttaaatataa   69419

cctcgtccgc aaaaaaaacc gcacatgata acgcgcggat acaatgagta gtggctttat   69479

ggcgaggatc ccaaatgtcc attacccggg ggatggtcct aatctgtaca aagttactta   69539

gtgtaatatg atcggacttc ttacgccgtc taggctgttt ctcagaatac ggttcacccg   69599

aaatcggcac atcatctgct tttacgtctt ccgtaaccac atcagcagcg cgccgactaa   69659

caattatact tgttttttca tcgtcgttac ttccgttaag cgcgtctcgt atctcgggcg   69719

tcccgtcgaa taatccactc actagctcct gcaaactttc tggtaactcc aacatacgca   69779

tatacaccaa tgaaaaactg gcttcgtttg gtacgtacat aaagccattt gtggtattaa   69839

tggcggtggg tgttggaaac aattttagct tattctcgcg cgtaacatct acccccgcca   69899

ccaatgttaa atgcgtcacg gggagggaca cgagataatc tgcgagcgta gggtcctcca   69959

cttcaacatc aaatgttccg caaaggtcgc gatccaccgc ccccgatccc gctgcaagta   70019

aggccactcg atccaaaaac acgcagttat tattggatga taccgcccat gtcttcccgg   70079

tgcgattgag ctcacttcga acgtaactgg caacagatct gtcaccgggt ccgaccccgc   70139

gaacaacatg tccaaatttt gcgatctcgc ctccatgttt gcggggtatg gaaattaagc   70199

atcccccgca tataaaatac gccctggtag cacgctcgtt aaaataaaac gttacgccgt   70259

tataagatac ggttgaatga tatggaaatt ccatattaaa gcgtttatcg gaacattaac   70319

ctcgaacttg ccgtcccgtg atcgtgtgat cgccaacctt aggtccacac cgaatatgag   70379

aaatatataa ctacacgcaa acattcaaaa caccgtggta tcattaacgt catatgaaaa   70439

gatccaatca atccaatcaa ccacacctcc taccgtttag cacgtcagct atgtgacatg   70499

ctccaaacat acgtaaacat ttagagaggg tgttataaca gtctgtcagg cggggtatat   70559
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tctacataat acaaggatcg gctttaactt tgtcaacatt tttactttgg actataaact   70619

gcgactgaac gtt atg aac cca ccc caa   gcc cgc gtc tcg gaa   cag     70665
            Met Asn Pro Pro Gln   Ala Arg Val Ser Glu   Gln
                        12090                     12095

aca aag gac ttg   ctt agc gtt atg gtt   aac cag cac ccc gaa   gag   70710
Thr Lys Asp Leu   Leu Ser Val Met Val   Asn Gln His Pro Glu   Glu
            12100                12105                   12110

gac gca aaa gtg   tgt aaa tcc agt gat   aat tca ccg ctt tat   aac   70755
Asp Ala Lys Val   Cys Lys Ser Ser Asp   Asn Ser Pro Leu Tyr   Asn
            12115                12120                   12125

acc atg gtt atg   tta tcg tat ggg ggt   gat acg gac tta cta   tta   70800
Thr Met Val Met   Leu Ser Tyr Gly Gly   Asp Thr Asp Leu Leu   Leu
            12130                12135                   12140

agc tct gca tgt   acc cgc aca tct acc   gta aac agg tcg gcg   ttt   70845
Ser Ser Ala Cys   Thr Arg Thr Ser Thr   Val Asn Arg Ser Ala   Phe
            12145                12150                   12155

acg caa cac tcc   gtg ttt tat att ata   tcc acg gtg ttg att   caa   70890
Thr Gln His Ser   Val Phe Tyr Ile Ile   Ser Thr Val Leu Ile   Gln
            12160                12165                   12170

cca ata tgt tgt   atc ttc ttt ttt ttt   tac tat aaa gcg aca   cgc   70935
Pro Ile Cys Cys   Ile Phe Phe Phe Phe   Tyr Tyr Lys Ala Thr   Arg
            12175                12180                   12185

tgt atg ctc tta   ttc aca gcc ggg tta   ctt ctg acg att cta   cat   70980
Cys Met Leu Leu   Phe Thr Ala Gly Leu   Leu Leu Thr Ile Leu   His
            12190                12195                   12200

cac ttt cga ctt   att att atg tta ttg   tgt gtc tac aga aat   ata   71025
His Phe Arg Leu   Ile Ile Met Leu Leu   Cys Val Tyr Arg Asn   Ile
            12205                12210                   12215

cga tca gac ctg   cta ccc tta tct aca   tcc cag caa ctg ctg   ctt   71070
Arg Ser Asp Leu   Leu Pro Leu Ser Thr   Ser Gln Gln Leu Leu   Leu
            12220                12225                   12230

gga att att gtt   gtg act cga aca atg   cta ttt tgt att acg   gcg   71115
Gly Ile Ile Val   Val Thr Arg Thr Met   Leu Phe Cys Ile Thr   Ala
            12235                12240                   12245

tat tat act ctt   ttt ata gac acc cgg   gtg ttc ttt ttg att   acc   71160
Tyr Tyr Thr Leu   Phe Ile Asp Thr Arg   Val Phe Phe Leu Ile   Thr
            12250                12255                   12260

gga cac ttg caa   agt gag gtt att ttt   cca gat agc gtt tca   aaa   71205
Gly His Leu Gln   Ser Glu Val Ile Phe   Pro Asp Ser Val Ser   Lys
            12265                12270                   12275

ata ctt cct gtg   tcg tgg ggt cca agt   cca gcc gtg tta ctg   gta   71250
Ile Leu Pro Val   Ser Trp Gly Pro Ser   Pro Ala Val Leu Leu   Val
            12280                12285                   12290
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atg gcg gca gtt     att tac gct atg gac     tgt ttg gtg gac acg     gta     71295
Met Ala Ala Val     Ile Tyr Ala Met Asp     Cys Leu Val Asp Thr     Val
            12295                 12300                     12305

tcc ttt att ggg     cca agg gtg tgg gtc     cgt gtt atg tta aaa     aca     71340
Ser Phe Ile Gly     Pro Arg Val Trp Val     Arg Val Met Leu Lys     Thr
            12310                 12315                     12320

tct att tcg ttt     tag tccatttcaa taaatgtact ataattgttc agtctaaaaa     71395
Ser Ile Ser Phe
            12325


taatgttggg tatttataat taccgccccc gtgttacttg gaaacaccca tacatatgtt     71455

ccactctaca tcaaacttct cgcagttttc ttgttcccgc acacgtttac acgtccggat     71515

tcaagtcgca acgctgctga caaa atg aca acg gtt tca     tgt ccc gct aac     71566
                         Met Thr Thr Val Ser     Cys Pro Ala Asn
                                         12330

gtg     att act aca acg gaa     tct gat cgt att gct     ggg tta ttt aac     71611
Val     Ile Thr Thr Thr Glu     Ser Asp Arg Ile Ala     Gly Leu Phe Asn
12335                 12340                     12345

atc     cca gcg ggg atc att     cca act gga aat gtg     ctg tca acc ata     71656
Ile     Pro Ala Gly Ile Ile     Pro Thr Gly Asn Val     Leu Ser Thr Ile
12350                 12355                     12360

gag     gtg tgt gca cac cgt     tgc att ttt gat ttt     ttt aaa caa ata     71701
Glu     Val Cys Ala His Arg     Cys Ile Phe Asp Phe     Phe Lys Gln Ile
12365                 12370                     12375

cga     tca gat gat aac agc     ctt tac tcg gct caa     ttc gat att ctt     71746
Arg     Ser Asp Asp Asn Ser     Leu Tyr Ser Ala Gln     Phe Asp Ile Leu
12380                 12385                     12390

ttg     ggg aca tac tgc aat     aca tta aac ttt gtg     cgt ttt cta gaa     71791
Leu     Gly Thr Tyr Cys Asn     Thr Leu Asn Phe Val     Arg Phe Leu Glu
12395                 12400                     12405

ctt     gga ctg tct gtc gct     tgc atc tgt act aaa     ttt ccg gag ctg     71836
Leu     Gly Leu Ser Val Ala     Cys Ile Cys Thr Lys     Phe Pro Glu Leu
12410                 12415                     12420

gct     tac gtg cga gat ggc     gtt att caa ttt gag     gta caa caa ccc     71881
Ala     Tyr Val Arg Asp Gly     Val Ile Gln Phe Glu     Val Gln Gln Pro
12425                 12430                     12435

atg     ata gca cgt gat ggc     cca cat ccc gtc gat     cag cct gtt cat     71926
Met     Ile Ala Arg Asp Gly     Pro His Pro Val Asp     Gln Pro Val His
12440                 12445                     12450

aat     tat atg gtt aag cgg     ata cac aag cgt tcg     tta agc gct gcg     71971
Asn     Tyr Met Val Lys Arg     Ile His Lys Arg Ser     Leu Ser Ala Ala
12455                 12460                     12465
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ttt     gca att gca tcg gaa    gcg ttg agt ttg tta    agt aac aca tat    72016
Phe     Ala Ile Ala Ser Glu    Ala Leu Ser Leu Leu    Ser Asn Thr Tyr
12470                   12475                   12480

gtc     gat ggg aca gag att    gac tca tcg tta cgt    ata aga gct atc    72061
Val     Asp Gly Thr Glu Ile    Asp Ser Ser Leu Arg    Ile Arg Ala Ile
12485                   12490                   12495

caa     cag atg gct cgt aat    tta cgc acc gtt ttg    gac tca ttt gaa    72106
Gln     Gln Met Ala Arg Asn    Leu Arg Thr Val Leu    Asp Ser Phe Glu
12500                   12505                   12510

cga     ggc act gcc gat caa    ctt ctt ggt gtt cta    ttg gag aaa gcc    72151
Arg     Gly Thr Ala Asp Gln    Leu Leu Gly Val Leu    Leu Glu Lys Ala
12515                   12520                   12525

cca     ccg cta tcg ctg ctt    tca cca att aat aaa    ttc caa ccc gag    72196
Pro     Pro Leu Ser Leu Leu    Ser Pro Ile Asn Lys    Phe Gln Pro Glu
12530                   12535                   12540

gga     cat cta aat cgt gtt    gca cgc gcg gcc cta    ctt tcg gac ctc    72241
Gly     His Leu Asn Arg Val    Ala Arg Ala Ala Leu    Leu Ser Asp Leu
12545                   12550                   12555

aaa     cgt aga gtc tgt gcg    gat atg ttt ttt atg    acc cga cac gcc    72286
Lys     Arg Arg Val Cys Ala    Asp Met Phe Phe Met    Thr Arg His Ala
12560                   12565                   12570

agg     gaa cct agg ctg atc    tct gcg tat ctg tcg    gat atg gtt tcg    72331
Arg     Glu Pro Arg Leu Ile    Ser Ala Tyr Leu Ser    Asp Met Val Ser
12575                   12580                   12585

tgc     acc caa cca tcg gtg    atg gta tca cga ata    act cat aca aac    72376
Cys     Thr Gln Pro Ser Val    Met Val Ser Arg Ile    Thr His Thr Asn
12590                   12595                   12600

act     cgc gga cgg cag gtt    gac ggt gtg ttg gta    aca aca gca acc    72421
Thr     Arg Gly Arg Gln Val    Asp Gly Val Leu Val    Thr Thr Ala Thr
12605                   12610                   12615

tta     aaa cgg caa cta tta    cag gga att tta caa    att gac gac acc    72466
Leu     Lys Arg Gln Leu Leu    Gln Gly Ile Leu Gln    Ile Asp Asp Thr
12620                   12625                   12630

gcc     gct gac gta cca gta    aca tat ggc gaa atg    gtt cta cag ggg    72511
Ala     Ala Asp Val Pro Val    Thr Tyr Gly Glu Met    Val Leu Gln Gly
12635                   12640                   12645

aca     aac ttg gta acc gcc    ctt gtg atg gga aag    gcc gtc cgc gga    72556
Thr     Asn Leu Val Thr Ala    Leu Val Met Gly Lys    Ala Val Arg Gly
12650                   12655                   12660

atg     gat gat gta gcc cgc    cat ctc ctt gat ata    acc gac cct aac    72601
Met     Asp Asp Val Ala Arg    His Leu Leu Asp Ile    Thr Asp Pro Asn
12665                   12670                   12675

acg     tta aac ata ccg tct    ata ccc cca caa tcc    aac tcc gat tca    72646
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Thr   Leu Asn Ile Pro Ser   Ile Pro Pro Gln Ser   Asn Ser Asp Ser
12680   12685   12690

acg   aca gct ggg ctt ccg   gtt aac gcc cgt gtt   cct gcg gat tta   72691
Thr   Thr Ala Gly Leu Pro   Val Asn Ala Arg Val   Pro Ala Asp Leu
12695   12700   12705

gtg   att gtt ggg gat aaa   ctt gta ttc tta gaa   gca tta gaa cgg   72736
Val   Ile Val Gly Asp Lys   Leu Val Phe Leu Glu   Ala Leu Glu Arg
12710   12715   12720

cgg   gtc tac caa gct acg   cgc gtt gcc tac cct   ctt att gga aat   72781
Arg   Val Tyr Gln Ala Thr   Arg Val Ala Tyr Pro   Leu Ile Gly Asn
12725   12730   12735

ata   gat att acg ttt atc   atg cca atg gga gtg   ttt cag gca aac   72826
Ile   Asp Ile Thr Phe Ile   Met Pro Met Gly Val   Phe Gln Ala Asn
12740   12745   12750

tcc   atg gac aga tat aca   cga cac gcc ggc gat   ttt tca act gta   72871
Ser   Met Asp Arg Tyr Thr   Arg His Ala Gly Asp   Phe Ser Thr Val
12755   12760   12765

tcc   gaa cag gat cca cgt   caa ttt cca ccc caa   ggg att ttt ttt   72916
Ser   Glu Gln Asp Pro Arg   Gln Phe Pro Pro Gln   Gly Ile Phe Phe
12770   12775   12780

tat   aat aaa gat ggg ata   tta aca cag ttg act   ctt cgt gat gca   72961
Tyr   Asn Lys Asp Gly Ile   Leu Thr Gln Leu Thr   Leu Arg Asp Ala
12785   12790   12795

atg   ggt acc atc tgc cac   agt tca ttg ctt gat   gtc gag gcc aca   73006
Met   Gly Thr Ile Cys His   Ser Ser Leu Leu Asp   Val Glu Ala Thr
12800   12805   12810

ctt   gtt gcc ctc cgc caa   caa cat tta gat cgt   cag tgt tat ttt   73051
Leu   Val Ala Leu Arg Gln   Gln His Leu Asp Arg   Gln Cys Tyr Phe
12815   12820   12825

ggt   gta tac gtg gcc gag   ggt aca gag gac aca   ttg gat gtt caa   73096
Gly   Val Tyr Val Ala Glu   Gly Thr Glu Asp Thr   Leu Asp Val Gln
12830   12835   12840

atg   ggg agg ttt atg gaa   acg tgg gca gat atg   atg cct cat cac   73141
Met   Gly Arg Phe Met Glu   Thr Trp Ala Asp Met   Met Pro His His
12845   12850   12855

cct   cat tgg gta aac gaa   cat tta aca att cta   cag ttt ata gct   73186
Pro   His Trp Val Asn Glu   His Leu Thr Ile Leu   Gln Phe Ile Ala
12860   12865   12870

ccg   agc aac ccg cgt cta   agg ttt gaa tta aac   ccc gcc ttt gat   73231
Pro   Ser Asn Pro Arg Leu   Arg Phe Glu Leu Asn   Pro Ala Phe Asp
12875   12880   12885

ttt   ttt gtt gca ccg ggg   gac gta gac ctt ccc   gga ccg cag cgt   73276
Phe   Phe Val Ala Pro Gly   Asp Val Asp Leu Pro   Gly Pro Gln Arg

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ccc   ccg gaa gcc atg cca   acc gtt aac gca aca   tta cgg att atc   73321
Pro   Pro Glu Ala Met Pro   Thr Val Asn Ala Thr   Leu Arg Ile Ile
12905                 12910                  12915

aac   gga aac att ccc gtg   cct cta tgt ccc att   tca ttt cga gac   73366
Asn   Gly Asn Ile Pro Val   Pro Leu Cys Pro Ile   Ser Phe Arg Asp
12920                 12925                  12930

tgt   cgc gga acc caa ctc   ggt ttg gga aga cat   aca atg acc ccg   73411
Cys   Arg Gly Thr Gln Leu   Gly Leu Gly Arg His   Thr Met Thr Pro
12935                 12940                  12945

gca   acc att aaa gcc gta   aag gat aca ttt gaa   gac cgc gca tac   73456
Ala   Thr Ile Lys Ala Val   Lys Asp Thr Phe Glu   Asp Arg Ala Tyr
12950                 12955                  12960

cca   act att ttc tac atg   cta gag gct gtt att   cat gga aac gaa   73501
Pro   Thr Ile Phe Tyr Met   Leu Glu Ala Val Ile   His Gly Asn Glu
12965                 12970                  12975

aga   aac ttc tgt gcg tta   ctg cga ctg tta aca   cag tgt att cgc   73546
Arg   Asn Phe Cys Ala Leu   Leu Arg Leu Leu Thr   Gln Cys Ile Arg
12980                 12985                  12990

ggg   tat tgg gag caa tcc   cac agg gtg gca ttt   gta aat aac ttt   73591
Gly   Tyr Trp Glu Gln Ser   His Arg Val Ala Phe   Val Asn Asn Phe
12995                 13000                  13005

cac   atg tta atg tac ata   act aca tat ctc gga   aac ggt gag ctt   73636
His   Met Leu Met Tyr Ile   Thr Thr Tyr Leu Gly   Asn Gly Glu Leu
13010                 13015                  13020

ccc   gaa gtc tgt att aat   ata tat cgg gat tta   ctg cag cat gta   73681
Pro   Glu Val Cys Ile Asn   Ile Tyr Arg Asp Leu   Leu Gln His Val
13025                 13030                  13035

aga   gca tta cgc caa act   ata acc gat ttt aca   ata caa gga gag   73726
Arg   Ala Leu Arg Gln Thr   Ile Thr Asp Phe Thr   Ile Gln Gly Glu
13040                 13045                  13050

ggc   cat aac ggc gag acc   tcg gaa gcg cta aat   aac atc ctt acg   73771
Gly   His Asn Gly Glu Thr   Ser Glu Ala Leu Asn   Asn Ile Leu Thr
13055                 13060                  13065

gat   gac acg ttt att gca   cct att cta tgg gat   tgt gat gcg tta   73816
Asp   Asp Thr Phe Ile Ala   Pro Ile Leu Trp Asp   Cys Asp Ala Leu
13070                 13075                  13080

ata   tac cgt gat gaa gcc   gcc cga gac cga ctc   ccc gca att cgt   73861
Ile   Tyr Arg Asp Glu Ala   Ala Arg Asp Arg Leu   Pro Ala Ile Arg
13085                 13090                  13095

gta   agc ggg cga aac gga   tac caa gcc ctt cac   ttt gtg gat atg   73906
Val   Ser Gly Arg Asn Gly   Tyr Gln Ala Leu His   Phe Val Asp Met
13100                 13105                  13110
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gcc   ggg cat aac ttc caa   cga cgc gat aat gtg   tta atc cac ggg   73951
Ala   Gly His Asn Phe Gln   Arg Arg Asp Asn Val   Leu Ile His Gly
13115                 13120                 13125

aga   ccc gtt cgg gga gac   acg ggt cag ggt att   ccc att act cca   73996
Arg   Pro Val Arg Gly Asp   Thr Gly Gln Gly Ile   Pro Ile Thr Pro
13130                 13135                 13140

cac   cat gac cgt gaa tgg   ggt att ctc tcc aag   att tac tac tat   74041
His   His Asp Arg Glu Trp   Gly Ile Leu Ser Lys   Ile Tyr Tyr Tyr
13145                 13150                 13155

att   gtc att cct gca ttt   tcc cgc ggt tcc tgt   tgt aca atg ggc   74086
Ile   Val Ile Pro Ala Phe   Ser Arg Gly Ser Cys   Cys Thr Met Gly
13160                 13165                 13170

gtg   cgt tat gat cgc cta   tac cct gcg tta cag   gca gtt atc gtt   74131
Val   Arg Tyr Asp Arg Leu   Tyr Pro Ala Leu Gln   Ala Val Ile Val
13175                 13180                 13185

ccg   gaa att ccc gct gat   gaa gaa gcc cca act   acc cca gaa gat   74176
Pro   Glu Ile Pro Ala Asp   Glu Glu Ala Pro Thr   Thr Pro Glu Asp
13190                 13195                 13200

cca   aga cac cct ctt cac   gca cac caa ctc gtt   ccg aac tct ctt   74221
Pro   Arg His Pro Leu His   Ala His Gln Leu Val   Pro Asn Ser Leu
13205                 13210                 13215

aac   gtt tac ttc cat aat   gca cac cta acc gtt   gat ggt gat gca   74266
Asn   Val Tyr Phe His Asn   Ala His Leu Thr Val   Asp Gly Asp Ala
13220                 13225                 13230

ttg   ctc aca cta caa gag   tta atg gga gat atg   gct gaa cga acg   74311
Leu   Leu Thr Leu Gln Glu   Leu Met Gly Asp Met   Ala Glu Arg Thr
13235                 13240                 13245

acg   gcc att tta gta tca   agc gcc ccc gat gcg   gga gcc gcc acg   74356
Thr   Ala Ile Leu Val Ser   Ser Ala Pro Asp Ala   Gly Ala Ala Thr
13250                 13255                 13260

gca   aca acc aga aat atg   aga ata tat gac gga   gcg ctt tac cat   74401
Ala   Thr Thr Arg Asn Met   Arg Ile Tyr Asp Gly   Ala Leu Tyr His
13265                 13270                 13275

ggc   ctt att atg atg gca   tat cag gcg tac gat   gaa acc att gca   74446
Gly   Leu Ile Met Met Ala   Tyr Gln Ala Tyr Asp   Glu Thr Ile Ala
13280                 13285                 13290

acg   ggt act ttt ttt tat   ccc gtt ccg gtc aac   cct ctg ttt gca   74491
Thr   Gly Thr Phe Phe Tyr   Pro Val Pro Val Asn   Pro Leu Phe Ala
13295                 13300                 13305

tgt   ccg gaa cat ttg gca   tca ttg cgt gga atg   aca aat gct agg   74536
Cys   Pro Glu His Leu Ala   Ser Leu Arg Gly Met   Thr Asn Ala Arg
13310                 13315                 13320
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cgg   gtt ttg gca aaa atg   gta cca cca atc cct   cct ttt ctg gga   74581
Arg   Val Leu Ala Lys Met   Val Pro Pro Ile Pro   Pro Phe Leu Gly
13325             13330                13335

gcc   aac cac cac gca act   ata cgc caa ccc gtt   gcc tac cat gta   74626
Ala   Asn His His Ala Thr   Ile Arg Gln Pro Val   Ala Tyr His Val
13340             13345                13350

acg   cat agt aag tcg gat   ttt aat act ctt aca   tat tct ctt ctt   74671
Thr   His Ser Lys Ser Asp   Phe Asn Thr Leu Thr   Tyr Ser Leu Leu
13355             13360                13365

gga   ggg tat ttt aag ttt   aca cca ata tct ctt   aca cat caa cta   74716
Gly   Gly Tyr Phe Lys Phe   Thr Pro Ile Ser Leu   Thr His Gln Leu
13370             13375                13380

cga   acg gga ttt cac ccc   ggg att gcc ttt acc   gta gtg cgc cag   74761
Arg   Thr Gly Phe His Pro   Gly Ile Ala Phe Thr   Val Val Arg Gln
13385             13390                13395

gat   cgc ttt gcc aca gag   caa ctt tta tat gcc   gag cgt gct tct   74806
Asp   Arg Phe Ala Thr Glu   Gln Leu Leu Tyr Ala   Glu Arg Ala Ser
13400             13405                13410

gaa   tcg tac ttt gtc gga   caa atc caa gta cac   cat cat gat gct   74851
Glu   Ser Tyr Phe Val Gly   Gln Ile Gln Val His   His His Asp Ala
13415             13420                13425

att   ggg ggg gta aac ttt   acc cta acc caa ccc   aga gct cac gtg   74896
Ile   Gly Gly Val Asn Phe   Thr Leu Thr Gln Pro   Arg Ala His Val
13430             13435                13440

gac   ctg gga gtc ggg tat   aca gct gta tgt gcc   aca gca gcc ctg   74941
Asp   Leu Gly Val Gly Tyr   Thr Ala Val Cys Ala   Thr Ala Ala Leu
13445             13450                13455

cga   tgc cct ctc acg gat   atg ggc aat act gcc   caa aat ctt ttt   74986
Arg   Cys Pro Leu Thr Asp   Met Gly Asn Thr Ala   Gln Asn Leu Phe
13460             13465                13470

ttt   tca cga gga gga gtg   cca atg tta cat gat   aac gtt acc gaa   75031
Phe   Ser Arg Gly Gly Val   Pro Met Leu His Asp   Asn Val Thr Glu
13475             13480                13485

tcg   ttg cgt cgt ata aca   gca tcg ggg ggt cgc   tta aat ccc acc   75076
Ser   Leu Arg Arg Ile Thr   Ala Ser Gly Gly Arg   Leu Asn Pro Thr
13490             13495                13500

gaa   ccc cta ccc atc ttc   ggc gga cta cgt cct   gct aca tcg gca   75121
Glu   Pro Leu Pro Ile Phe   Gly Gly Leu Arg Pro   Ala Thr Ser Ala
13505             13510                13515

gga   att gca cga ggg caa   gcc tct gtg tgt gag   ttt gtg gcc atg   75166
Gly   Ile Ala Arg Gly Gln   Ala Ser Val Cys Glu   Phe Val Ala Met
13520             13525                13530

ccg   gtg tcc act gac cta   caa tat ttt aga act   gca tgc aat cct   75211
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Pro     Val Ser Thr Asp Leu    Gln Tyr Phe Arg Thr    Ala Cys Asn Pro
13535                   13540               13545

aga     ggt cga gca tct gga    atg tta tat atg ggt    gac cgt gac gcc    75256
Arg     Gly Arg Ala Ser Gly    Met Leu Tyr Met Gly    Asp Arg Asp Ala
13550                   13555               13560

gac     ata gag gct ata atg    ttt gat cac aca caa    tcg gat gtt gct    75301
Asp     Ile Glu Ala Ile Met    Phe Asp His Thr Gln    Ser Asp Val Ala
13565                   13570               13575

tat     aca gat cga gca act    ctt aac cca tgg gca    tca caa aaa cat    75346
Tyr     Thr Asp Arg Ala Thr    Leu Asn Pro Trp Ala    Ser Gln Lys His
13580                   13585               13590

tca     tac ggt gac agg cta    tac aac gga aca tac    aac ctt aca ggc    75391
Ser     Tyr Gly Asp Arg Leu    Tyr Asn Gly Thr Tyr    Asn Leu Thr Gly
13595                   13600               13605

gct     tct cct atc tac agc    cca tgc ttt aag ttt    ttt aca cca gcg    75436
Ala     Ser Pro Ile Tyr Ser    Pro Cys Phe Lys Phe    Phe Thr Pro Ala
13610                   13615               13620

gag     gtt aac act aat tgt    aat aca ctg gat cgg    ctt cta atg gag    75481
Glu     Val Asn Thr Asn Cys    Asn Thr Leu Asp Arg    Leu Leu Met Glu
13625                   13630               13635

gca     aag gct gtg gcg tcg    caa agc tcc acc gac    act gaa tat caa    75526
Ala     Lys Ala Val Ala Ser    Gln Ser Ser Thr Asp    Thr Glu Tyr Gln
13640                   13645               13650

ttt     aaa cgc cct ccc ggt    tct acc gaa atg aca    cag gat ccg tgt    75571
Phe     Lys Arg Pro Pro Gly    Ser Thr Glu Met Thr    Gln Asp Pro Cys
13655                   13660               13665

ggc     ctt ttt caa gaa gca    tat cca cca cta tgc    tca agc gat gcg    75616
Gly     Leu Phe Gln Glu Ala    Tyr Pro Pro Leu Cys    Ser Ser Asp Ala
13670                   13675               13680

gcc     atg tta cga acg gct    cac gcg gga gaa acc    ggg gca gat gaa    75661
Ala     Met Leu Arg Thr Ala    His Ala Gly Glu Thr    Gly Ala Asp Glu
13685                   13690               13695

gtt     cac tta gcc caa tat    ctg att cga gac gcg    tcg ccc ctt agg    75706
Val     His Leu Ala Gln Tyr    Leu Ile Arg Asp Ala    Ser Pro Leu Arg
13700                   13705               13710

gga     tgt ctt cct ctt ccg    cga taa tttcaccacg cccacatacc         75750
Gly     Cys Leu Pro Leu Pro    Arg
13715                   13720

cactcccaat aaaagccctg tagagcgcat tggcatctta cttgagattt ggatacgctc    75810

ggccgacttg gtctgtttca cgcttcctta aacaac atg gct atg cca    ttt gag    75864
                                          Met Ala Met Pro    Phe Glu
                                                     13725
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ata gag gta   ttg tta cca gga gaa   cta tcc ccg gcg gaa   aca tct   75909
Ile Glu Val   Leu Leu Pro Gly Glu   Leu Ser Pro Ala Glu   Thr Ser
          13730                13735                13740

gca tta cag   aaa tgt gag gga aaa   att att acc ttc tca   acc ctg   75954
Ala Leu Gln   Lys Cys Glu Gly Lys   Ile Ile Thr Phe Ser   Thr Leu
          13745                13750                13755

cgt cat cga   gct tca ctg gtg gat   ata gcg ctg tcg tca   tat tac   75999
Arg His Arg   Ala Ser Leu Val Asp   Ile Ala Leu Ser Ser   Tyr Tyr
          13760                13765                13770

att aac ggt   gct cca cca gac acg   ctc tcg ctg tta gag   gca tac   76044
Ile Asn Gly   Ala Pro Pro Asp Thr   Leu Ser Leu Leu Glu   Ala Tyr
          13775                13780                13785

cga atg cga   ttc gcg gca gtt ata   aca cgg gtc atc ccg   gga aag   76089
Arg Met Arg   Phe Ala Ala Val Ile   Thr Arg Val Ile Pro   Gly Lys
          13790                13795                13800

ttg ttg gcg   cat gcc att ggc gtg   ggt act cct aca ccc   ggg ttg   76134
Leu Leu Ala   His Ala Ile Gly Val   Gly Thr Pro Thr Pro   Gly Leu
          13805                13810                13815

ttt att caa   aat aca tcc ccc gtt   gat ctt tgt aat ggc   gat tac   76179
Phe Ile Gln   Asn Thr Ser Pro Val   Asp Leu Cys Asn Gly   Asp Tyr
          13820                13825                13830

atc tgc tta   ctt cct ccg gtt ttc   ggg tcc gca gac tca   att cgc   76224
Ile Cys Leu   Leu Pro Pro Val Phe   Gly Ser Ala Asp Ser   Ile Arg
          13835                13840                13845

ttg gac tct   gta gga ctg gaa att   gtt ttc cct tta acc   atc ccc   76269
Leu Asp Ser   Val Gly Leu Glu Ile   Val Phe Pro Leu Thr   Ile Pro
          13850                13855                13860

cag acc tta   atg cga gaa atc atc   gcc aaa gtg gtt gca   cgg gcc   76314
Gln Thr Leu   Met Arg Glu Ile Ile   Ala Lys Val Val Ala   Arg Ala
          13865                13870                13875

gtt gag cgc   acg gcc gcg ggt gct   caa att tta ccc cac   gaa gtt   76359
Val Glu Arg   Thr Ala Ala Gly Ala   Gln Ile Leu Pro His   Glu Val
          13880                13885                13890

cta cga ggc   gcg gat gtc att tgt   tac aat gga agg cgt   tat gaa   76404
Leu Arg Gly   Ala Asp Val Ile Cys   Tyr Asn Gly Arg Arg   Tyr Glu
          13895                13900                13905

ctc gaa aca   aat tta caa cat cgg   gac gga tcg gat gcg   gct att   76449
Leu Glu Thr   Asn Leu Gln His Arg   Asp Gly Ser Asp Ala   Ala Ile
          13910                13915                13920

cgc aca ttg   gtt tta aat cta atg   ttt tcc ata aac gag   gga tgt   76494
Arg Thr Leu   Val Leu Asn Leu Met   Phe Ser Ile Asn Glu   Gly Cys
          13925                13930                13935

ctg ctt tta   ttg gcg ctg att cca   act ttg tta gtc caa   gga gca   76539
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Leu Leu Leu   Leu Ala Leu Ile Pro   Thr Leu Leu Val Gln   Gly Ala
        13940             13945            13950

cac gac ggt   tat gta aat tta ttg   ata caa acg gcc aat   tgc gtt   76584
His Asp Gly   Tyr Val Asn Leu Leu   Ile Gln Thr Ala Asn   Cys Val
        13955             13960            13965

aga gaa acc   ggc cag tta att aat   ata ccg cca atg ccg   cgg att   76629
Arg Glu Thr   Gly Gln Leu Ile Asn   Ile Pro Pro Met Pro   Arg Ile
        13970             13975            13980

caa gac ggc   cat cgc cga ttt ccc   ata tat gaa act att   tca tct   76674
Gln Asp Gly   His Arg Arg Phe Pro   Ile Tyr Glu Thr Ile   Ser Ser
        13985             13990            13995

tgg ata tca   aca tca tct aga ctg   ggg gat acc ttg gga   act cgc   76719
Trp Ile Ser   Thr Ser Ser Arg Leu   Gly Asp Thr Leu Gly   Thr Arg
        14000             14005            14010

gca att tta   cgc gtc tgt gtg ttt   gat gga ccc tct act   gtt cat   76764
Ala Ile Leu   Arg Val Cys Val Phe   Asp Gly Pro Ser Thr   Val His
        14015             14020            14025

ccg gga gac   cgc acg gcc gtg att   caa gtg taa acaggtgtta            76807
Pro Gly Asp   Arg Thr Ala Val Ile   Gln Val
        14030             14035

ataaaaacac aaccagtcta gttacatttc acgcgtcttg tttttattta ataggcataa  76867

acacggaatc cggtatacat gaactgccaa tatacacgga cataattaat gcaaccatca  76927

gatcatctga cattgttccc gtggtacctt tacccgtgta agtttttgtg tctagattac  76987

ccataccgcc tttaattacc tctgtcaggt tatccaactg tttacataga tactccacgg  77047

ggtctacacc taactttact gttagggata caagctcctg tgaggctatt atatttccgg  77107

agttaaatcg tttaacaaaa tagtctacgg ccggcgtttt ttgtttttgt aataaaaaaa  77167

aagggtacgc cacgctacat ccgggaggta tggaatgata aaacagtaac actggagcgg  77227

aagatagcac gtttcccttt tcgaggacag caaactgttg tgctatagcc aacgatatgg  77287

caactgcaga atcctggctg ctgtttccct ctatagaaac gtgtacgttt gtaaatgtat  77347

tggggtgtaa agcgagtatg tggcctaagc attgagtaac gcaacgccct atctcactgg  77407

aagacgtgcc agttaaagct ctaagaaaaa agtgctccaa tccaaatata atccaatccg  77467

acttataacg accaacaatc gctacaccag taccagacgc tcgtgtattt gaggtaaatg  77527

cagggtctac gtaaacgtac aacactgacg ataatatagc acaattcgca acggttgacg  77587

gccgatataa aataaacctc tcacgggcag tttttgtaaa taatggccgg tcaaacccca  77647

cacccccaga attctgttta cgcccaccta caatttcctg cacgaaggag tcggccataa  77707
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ataaatctgc agtgcgccgc atggctccat ccattgtgat gaaaaccggc ttatttaata 77767

cataacacga acaagctgtg acatcgctat gtgctaaaac acgcggcatg tgatcgtcgc 77827

atacatatgt aacaacgttt aacaactgat ccgacgatcc acgtaagtta tacaaaaaac 77887

ttgtacttgc ttttccggta tttgttgatg aaacaaaaat aattttacaa ttggtttgat 77947

ttaaaaatcc gactatagtt tgtacagcat caggtcgaat aaaattagct tcatccacaa 78007

acagaagatt aaaatcttga cctcggatac cctggaacga tagaaagata tatagttacc 78067

ccaccaaagt ttaaatgtat ccttaaatac cacgtacgta aaaaatgttt gaatacgtac 78127

atatttcttt tttttttcca gtacaaccat atccggtgta ta atg gaa gcc   cat   78181
                                                 Met Glu Ala   His
                                                         14040

ttg gca aat gaa   acc aaa cat gca ctt   tgg cat aat gat cac   aca   78226
Leu Ala Asn Glu   Thr Lys His Ala Leu   Trp His Asn Asp His   Thr
        14045   14050   14055

aaa gga tta cta   cac gtt gtg ata cct   aac gcg ggg ctt att   gcg   78271
Lys Gly Leu Leu   His Val Val Ile Pro   Asn Ala Gly Leu Ile   Ala
        14060   14065   14070

gcc gga ata gat   ccc gca tta ctg att   tta aag aaa ccc gga   caa   78316
Ala Gly Ile Asp   Pro Ala Leu Leu Ile   Leu Lys Lys Pro Gly   Gln
        14075   14080   14085

cgc ttc aag gtt   gaa gta caa aca aga   tat cat gct aca ggt   caa   78361
Arg Phe Lys Val   Glu Val Gln Thr Arg   Tyr His Ala Thr Gly   Gln
        14090   14095   14100

tgc gaa ccg tgg   tgt caa gtt ttc gcc   gcg tac att ccc gat   aac   78406
Cys Glu Pro Trp   Cys Gln Val Phe Ala   Ala Tyr Ile Pro Asp   Asn
        14105   14110   14115

gcc tta aca aat   ctc tta ata cca aaa   acg gaa cca ttt gtt   tca   78451
Ala Leu Thr Asn   Leu Leu Ile Pro Lys   Thr Glu Pro Phe Val   Ser
        14120   14125   14130

cac gtt ttt tcg   gcc acg cat aat tca   ggg gga ttg att tta   tca   78496
His Val Phe Ser   Ala Thr His Asn Ser   Gly Gly Leu Ile Leu   Ser
        14135   14140   14145

ttg cct gtt tat   ctt agc ccc ggt tta   ttc ttt gat gca ttt   aac   78541
Leu Pro Val Tyr   Leu Ser Pro Gly Leu   Phe Phe Asp Ala Phe   Asn
        14150   14155   14160

gtt gta gcg ata   cga ata aat act gga   aac cgc aag cac cgt   gat   78586
Val Val Ala Ile   Arg Ile Asn Thr Gly   Asn Arg Lys His Arg   Asp
        14165   14170   14175

att tgt att atg   tat gca gaa cta atc   cca aac gga acg cgt   tat   78631
Ile Cys Ile Met   Tyr Ala Glu Leu Ile   Pro Asn Gly Thr Arg   Tyr
        14180   14185   14190

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ttt gct gat gga    caa cgg gta ctt tta    tta tgc aaa cag ctg    att    78676
Phe Ala Asp Gly    Gln Arg Val Leu Leu    Leu Cys Lys Gln Leu    Ile
        14195                  14200                  14205

gcg tat atc cga    tgc acc cct cgt ctt    gca tcg tct ata aaa    ata    78721
Ala Tyr Ile Arg    Cys Thr Pro Arg Leu    Ala Ser Ser Ile Lys    Ile
        14210                  14215                  14220

tac gca gag cat    atg gtg gca gcc atg    ggt gaa tca cac acg    tca    78766
Tyr Ala Glu His    Met Val Ala Ala Met    Gly Glu Ser His Thr    Ser
        14225                  14230                  14235

aat ggg gac aat    att gga ccc gtt tca    tcc ata atc gat ctt    gat    78811
Asn Gly Asp Asn    Ile Gly Pro Val Ser    Ser Ile Ile Asp Leu    Asp
        14240                  14245                  14250

cga cag tta act    tct gga ggt att gat    gac tcc cct gct gaa    aca    78856
Arg Gln Leu Thr    Ser Gly Gly Ile Asp    Asp Ser Pro Ala Glu    Thr
        14255                  14260                  14265

cgc ata cag gaa    aat aat cgg gac gtc    ctt gag cta ata aaa    cgg    78901
Arg Ile Gln Glu    Asn Asn Arg Asp Val    Leu Glu Leu Ile Lys    Arg
        14270                  14275                  14280

gcc gta aac att    gtt aac tcc agg cac    ccc gtc cga cct tct    agt    78946
Ala Val Asn Ile    Val Asn Ser Arg His    Pro Val Arg Pro Ser    Ser
        14285                  14290                  14295

tcc cgc gtt gca    tct ggg ttg ctt caa    agt gca aag ggc cac    gga    78991
Ser Arg Val Ala    Ser Gly Leu Leu Gln    Ser Ala Lys Gly His    Gly
        14300                  14305                  14310

gcg caa act tcc    aac aca gat ccg atc    aat aac ggt tcc ttt    gat    79036
Ala Gln Thr Ser    Asn Thr Asp Pro Ile    Asn Asn Gly Ser Phe    Asp
        14315                  14320                  14325

ggc gtc ctt gag    ccg cct gga caa ggg    cga ttt acg gga aag    aaa    79081
Gly Val Leu Glu    Pro Pro Gly Gln Gly    Arg Phe Thr Gly Lys    Lys
        14330                  14335                  14340

aac aat tcg tcc    gcc agc atc cca cct    tta caa gac gtt cta    ttg    79126
Asn Asn Ser Ser    Ala Ser Ile Pro Pro    Leu Gln Asp Val Leu    Leu
        14345                  14350                  14355

ttt acc cca gct    tcg aca gaa ccc caa    agt ctt atg gaa tgg    ttc    79171
Phe Thr Pro Ala    Ser Thr Glu Pro Gln    Ser Leu Met Glu Trp    Phe
        14360                  14365                  14370

gac atc tgt tat    gcc caa tta gtt agc    ggg gac act cca gca    gat    79216
Asp Ile Cys Tyr    Ala Gln Leu Val Ser    Gly Asp Thr Pro Ala    Asp
        14375                  14380                  14385

ttc tgg aaa cgg    cgt ccc cta tca att    gta ccg cga cat tac    gca    79261
Phe Trp Lys Arg    Arg Pro Leu Ser Ile    Val Pro Arg His Tyr    Ala
        14390                  14395                  14400
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gaa tcc ccc agt    ccg ttg att gta gta    tct tac aac gga tcc    tct    79306
Glu Ser Pro Ser    Pro Leu Ile Val Val    Ser Tyr Asn Gly Ser    Ser
        14405                  14410                  14415

gcc tgg gga gga    cgt att acc gga agt    cca att tta tat cac    tct    79351
Ala Trp Gly Gly    Arg Ile Thr Gly Ser    Pro Ile Leu Tyr His    Ser
        14420                  14425                  14430

gca cag gct att    att gat gct gcg tgt    ata aat gcc cgg gtt    gac    79396
Ala Gln Ala Ile    Ile Asp Ala Ala Cys    Ile Asn Ala Arg Val    Asp
        14435                  14440                  14445

aat ccc caa agc    cta cat gtg aca gct    cgc caa gag cta gtc    gcg    79441
Asn Pro Gln Ser    Leu His Val Thr Ala    Arg Gln Glu Leu Val    Ala
        14450                  14455                  14460

cgt tta ccg ttt    ttg gct aac gtc cta    aat aat caa acc ccc    tta    79486
Arg Leu Pro Phe    Leu Ala Asn Val Leu    Asn Asn Gln Thr Pro    Leu
        14465                  14470                  14475

ccc gcc ttt aaa    cca ggc gcc gaa atg    ttt tta aac cag gta    ttt    79531
Pro Ala Phe Lys    Pro Gly Ala Glu Met    Phe Leu Asn Gln Val    Phe
        14480                  14485                  14490

aaa caa gcg tgt    gtg aca tcg cta acc    caa ggt ctt ata acg    gag    79576
Lys Gln Ala Cys    Val Thr Ser Leu Thr    Gln Gly Leu Ile Thr    Glu
        14495                  14500                  14505

tta caa acg aac    ccg act cta caa caa    ctc atg gaa tat gat    att    79621
Leu Gln Thr Asn    Pro Thr Leu Gln Gln    Leu Met Glu Tyr Asp    Ile
        14510                  14515                  14520

gca gat tct tcc    caa acg gtt att gat    gaa att gta gcc cgc    aca    79666
Ala Asp Ser Ser    Gln Thr Val Ile Asp    Glu Ile Val Ala Arg    Thr
        14525                  14530                  14535

cca gac ctg att    cag act ata gtt tcg    gtg tta acg gaa atg    tca    79711
Pro Asp Leu Ile    Gln Thr Ile Val Ser    Val Leu Thr Glu Met    Ser
        14540                  14545                  14550

atg gat gcg ttt    tat aac agc tcc ttg    atg tat gcg gtt ttg    gcg    79756
Met Asp Ala Phe    Tyr Asn Ser Ser Leu    Met Tyr Ala Val Leu    Ala
        14555                  14560                  14565

tat ctg tca tct    gta tat aca cga cca    caa ggt ggg ggg tat    ata    79801
Tyr Leu Ser Ser    Val Tyr Thr Arg Pro    Gln Gly Gly Gly Tyr    Ile
        14570                  14575                  14580

ccc tac ctt cac    gct tcc ttc cca tgc    tgg tta ggt aat cgt    tct    79846
Pro Tyr Leu His    Ala Ser Phe Pro Cys    Trp Leu Gly Asn Arg    Ser
        14585                  14590                  14595

ata tat tta ttt    gac tat tat aat tca    gga ggg gaa ata ctt    aag    79891
Ile Tyr Leu Phe    Asp Tyr Tyr Asn Ser    Gly Gly Glu Ile Leu    Lys
        14600                  14605                  14610

ctt tcc aag gtc    ccc gtt ccc gta gcc    tta gaa aag gtt ggt    att    79936
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Leu Ser Lys Val   Pro Val Pro Val Ala   Leu Glu Lys Val Gly   Ile
        14615                 14620               14625

ggt aat tcc aca   caa ctg agg ggt aaa   ttt ata cgc agc gcg   gat   79981
Gly Asn Ser Thr   Gln Leu Arg Gly Lys   Phe Ile Arg Ser Ala   Asp
        14630                 14635               14640

att gtt gat att   gga att tgt tct aag   tat tta ccc ggt caa   tgt   80026
Ile Val Asp Ile   Gly Ile Cys Ser Lys   Tyr Leu Pro Gly Gln   Cys
        14645                 14650               14655

tac gcg tac att   tgt cta gga ttt aac   cag caa tta caa tcc   att   80071
Tyr Ala Tyr Ile   Cys Leu Gly Phe Asn   Gln Gln Leu Gln Ser   Ile
        14660                 14665               14670

tta gtt tta ccg   ggg gga ttt gcg gca   tgt ttt tgt att acc   gat   80116
Leu Val Leu Pro   Gly Gly Phe Ala Ala   Cys Phe Cys Ile Thr   Asp
        14675                 14680               14685

acc cta cag gca   gca cta cct gca tcg   tta atc gga cct att   cta   80161
Thr Leu Gln Ala   Ala Leu Pro Ala Ser   Leu Ile Gly Pro Ile   Leu
        14690                 14695               14700

gac aga ttc tgc   ttc tct att ccc aac   ccc cat aaa taa             80200
Asp Arg Phe Cys   Phe Ser Ile Pro Asn   Pro His Lys
        14705                 14710

attagtgtca ctataaaaac ataacaccag aatctcttca tatgtaattt tacgtcattt   80260

ctcccgtttc caccccctct taaaatataa aataaccggg tgggtggcat taaacccaca   80320

agtacccggg cggcaatccg ctagactgtt tttctgctc atg gaa   tta caa cgc   80374
                                           Met Glu   Leu Gln Arg
                                               14715

ata ttt   ccg ctg tac acc gct   acg ggt gca gcg cgc   aaa tta acc   80419
Ile Phe   Pro Leu Tyr Thr Ala   Thr Gly Ala Ala Arg   Lys Leu Thr
    14720                14725                14730

ccc gag   gca gtt cag aga ctc   tgc gat gca tta acg   ctg gat atg   80464
Pro Glu   Ala Val Gln Arg Leu   Cys Asp Ala Leu Thr   Leu Asp Met
    14735                14740                14745

gga tta   tgg aag tcc atc ctg   acc gat ccc cgg gtg   aaa ata atg   80509
Gly Leu   Trp Lys Ser Ile Leu   Thr Asp Pro Arg Val   Lys Ile Met
    14750                14755                14760

cga tca   act gct ttt ata act   tta agg atc gct ccg   ttt atc ccc   80554
Arg Ser   Thr Ala Phe Ile Thr   Leu Arg Ile Ala Pro   Phe Ile Pro
    14765                14770                14775

ctt caa   acg gat act act aat   att gcc gtt gtt gta   gcc aca att   80599
Leu Gln   Thr Asp Thr Thr Asn   Ile Ala Val Val Val   Ala Thr Ile
    14780                14785                14790

tac atc   acg cgc cca cgt cag   atg aac tta cct ccg   aag act ttt   80644
Tyr Ile   Thr Arg Pro Arg Gln   Met Asn Leu Pro Pro   Lys Thr Phe
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cat gta  att gta aat ttt aat  tac gag gtc tcg tac  gca atg acg  80689
His Val  Ile Val Asn Phe Asn  Tyr Glu Val Ser Tyr  Ala Met Thr
    14810             14815             14820

gcg act  tta aga att tat ccg  gtt gaa aac ata gac  cat gtt ttt  80734
Ala Thr  Leu Arg Ile Tyr Pro  Val Glu Asn Ile Asp  His Val Phe
    14825             14830             14835

gga gca  acg ttt aag aac ccg  atc gcg tac ccc ctt  cca aca tct  80779
Gly Ala  Thr Phe Lys Asn Pro  Ile Ala Tyr Pro Leu  Pro Thr Ser
    14840             14845             14850

att ccg  gat cct cga gca gat  ccc acc ccc gca gat  ctt aca cca  80824
Ile Pro  Asp Pro Arg Ala Asp  Pro Thr Pro Ala Asp  Leu Thr Pro
    14855             14860             14865

acg cca  aac tta agc aac tac  tta caa ccc ccg cgg  ctt ccg aaa  80869
Thr Pro  Asn Leu Ser Asn Tyr  Leu Gln Pro Pro Arg  Leu Pro Lys
    14870             14875             14880

aat cca  tac gca tgt aaa gtt  att tct ccg gga gtg  tgg tgg tca  80914
Asn Pro  Tyr Ala Cys Lys Val  Ile Ser Pro Gly Val  Trp Trp Ser
    14885             14890             14895

gac gaa  cga agg cgt tta tat  gta ctg gct atg gaa  cct aat tta  80959
Asp Glu  Arg Arg Arg Leu Tyr  Val Leu Ala Met Glu  Pro Asn Leu
    14900             14905             14910

ata ggg  cta tgt ccc gcc gga  tgg cat gct cgg ata  ctt ggc tct  81004
Ile Gly  Leu Cys Pro Ala Gly  Trp His Ala Arg Ile  Leu Gly Ser
    14915             14920             14925

gta tta  aat cga ctc ctc agc  cat gcg gac gga tgt  gat gaa tgt  81049
Val Leu  Asn Arg Leu Leu Ser  His Ala Asp Gly Cys  Asp Glu Cys
    14930             14935             14940

aat cat  aga gtt cac gtg ggg  gca ctg tat gcg tta  ccc cat gtc  81094
Asn His  Arg Val His Val Gly  Ala Leu Tyr Ala Leu  Pro His Val
    14945             14950             14955

aca aat  cat gcg gaa ggt tgt  gtg tgt tgg gct ccg  tgt atg tgg  81139
Thr Asn  His Ala Glu Gly Cys  Val Cys Trp Ala Pro  Cys Met Trp
    14960             14965             14970

aga aag  gcc ggt cag cgg gaa  tta aaa gtg gag gta  gac att ggc  81184
Arg Lys  Ala Gly Gln Arg Glu  Leu Lys Val Glu Val  Asp Ile Gly
    14975             14980             14985

gcc acg  cag gtt ctt ttt gta  gat gtc acc acc tgc  att cga att  81229
Ala Thr  Gln Val Leu Phe Val  Asp Val Thr Thr Cys  Ile Arg Ile
    14990             14995             15000

acg agt  act aaa aat cct cgc  att acc gca aat ctt  ggc gac gtt  81274
Thr Ser  Thr Lys Asn Pro Arg  Ile Thr Ala Asn Leu  Gly Asp Val
    15005             15010             15015
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ata gcg   gga acc aac gcc agt   ggt ctc tct gta cca   gta aat tca   81319
Ile Ala   Gly Thr Asn Ala Ser   Gly Leu Ser Val Pro   Val Asn Ser
    15020                 15025                 15030

tct ggg   tgg cag ctt tat atg   ttt gga gaa aca tta   agc cgg gct   81364
Ser Gly   Trp Gln Leu Tyr Met   Phe Gly Glu Thr Leu   Ser Arg Ala
    15035                 15040                 15045

att att   aac ggc tgt ggt ctg   ctt cag cga att tgc   ttc ccc gag   81409
Ile Ile   Asn Gly Cys Gly Leu   Leu Gln Arg Ile Cys   Phe Pro Glu
    15050                 15055                 15060

aca caa   aga tta tcg ggt gaa   ccg gaa cct aca acc   acc tag       81451
Thr Gln   Arg Leu Ser Gly Glu   Pro Glu Pro Thr Thr   Thr
    15065                 15070                 15075

tataccttaa ctcaaccgcc gttgtggaaa ggtatatgtc aacatttaca gtaatatatt   81511

aaaggttaaa tttataaaac actcacgttt gtgttgtgac ttgacgcgaa caccgctgtg   81571

ctgtaagacc cgtcggtaaa tgaaaacgta atagattcgc cttttacatg atccacgtaa   81631

tttgccccaa accactgttc caggcgagac ttgataccct caaacacggg ttccgttgct   81691

ttgcgtatat gagccgtata acccacttta attcctctaa acgtggccat tactaaagct   81751

attaatggta caagaaacca tgttttccca tgtctacgtg gtaccaaaaa cacagttgat   81811

ttttgtttga agtgttctaa aacactgtca gaaacacttg gcgtgttaaa cactgtacgc   81871

agaaagcagt caactctgtc ggcatgatcg cccaatagca ccgatgaaat aaaatgcgtg   81931

gtgtgcatga ggatcatttt ttgaaacagt tccaacgtcc ccttatatct gccatagatt   81991

ggaacgtcaa cctttgcgcg tttgccatga cttccacact cttcaatact ctcaaaagat   82051

gtttccacaa ggtacgaaaa ccgttgtgta aaggtagaca actgacagaa actatccgac   82111

agagaaaacg cgcgaaatgt gttcataaca ccgctatacg catttcgatg aggtgctgct   82171

tcttccggtg aatattcata aaactgtaca ctactgacag cctttttttaa ttcagggctt   82231

acgtttgcat ttaccgaata tcgccatggt ttcaaaacta cattgggggt acagttgtac   82291

cctgttgacg atagaaacgc gccaaacatt gcccgtcgag cagtagccga aacagtgga   82351

atatattcac aacagttgtg aagcgttcca attccgggaa taacggcctg atgacgtcgg   82411

gttacatcta tagcaaaatt cagaaacggg atttgggttg cgtttcccag agacccttgc   82471

cgcgtggaac acggggtagg ggactccaac gtcccaaagc gttcatccct acgacgcttt   82531

agacgttcaa aatatcttac agattcttca ccaagcgtac gaccaaacat tatcaatgac   82591

atttaacatc aattcacgga atccgcctca tctcttgtaa gcagtaaaac aggaagccgc   82651
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gtcatcttac gtactcgtta cgtatatatc ataaacattt tcagggccgc attcattcac   82711

tttggtc atg tca ggc cac   act cca acc tac gct   tct cat agg cgt   82757
        Met Ser Gly His   Thr Pro Thr Tyr Ala   Ser His Arg Arg
                  15080   15085

aac   cgt gtc aaa cta gtt   gag gcg cat aac cgc   gcg ggg tta ttt   82802
Asn   Arg Val Lys Leu Val   Glu Ala His Asn Arg   Ala Gly Leu Phe
15090   15095   15100

aaa   gaa cgg acc ctc gat   cta atc cgt ggg ggt   gcg agt gta caa   82847
Lys   Glu Arg Thr Leu Asp   Leu Ile Arg Gly Gly   Ala Ser Val Gln
15105   15110   15115

gat   cca gca ttt gtg tat   gcc ttt act gct gca   aaa gag gcc tgc   82892
Asp   Pro Ala Phe Val Tyr   Ala Phe Thr Ala Ala   Lys Glu Ala Cys
15120   15125   15130

gcc   gat tta aat aac cag   ctc cgc tct gca gct   cgc ata gct tca   82937
Ala   Asp Leu Asn Asn Gln   Leu Arg Ser Ala Ala   Arg Ile Ala Ser
15135   15140   15145

gtt   gaa cag aag att cgt   gat ata caa tcc aag   gtt gag gaa caa   82982
Val   Glu Gln Lys Ile Arg   Asp Ile Gln Ser Lys   Val Glu Glu Gln
15150   15155   15160

aca   agt att caa cag att   tta aat aca aac aga   cgc tat ata gca   83027
Thr   Ser Ile Gln Gln Ile   Leu Asn Thr Asn Arg   Arg Tyr Ile Ala
15165   15170   15175

ccc   gat ttt att cgc ggt   ttg gat aaa aca gaa   gac gat aat acc   83072
Pro   Asp Phe Ile Arg Gly   Leu Asp Lys Thr Glu   Asp Asp Asn Thr
15180   15185   15190

gat   aat ata gac aga ctg   gaa gac gcg gta gga   ccg aac atc gaa   83117
Asp   Asn Ile Asp Arg Leu   Glu Asp Ala Val Gly   Pro Asn Ile Glu
15195   15200   15205

cac   gaa aat cat act tgg   ttt gga gaa gac gac   gaa gcg tta ctt   83162
His   Glu Asn His Thr Trp   Phe Gly Glu Asp Asp   Glu Ala Leu Leu
15210   15215   15220

aca   caa tgg atg ctg acg   aca cac ccc cca acc   tcc aaa tat ctc   83207
Thr   Gln Trp Met Leu Thr   Thr His Pro Pro Thr   Ser Lys Tyr Leu
15225   15230   15235

caa   ctg cag gac ctt tgc   gtt ccc acc aca ata   ccg acg gac atg   83252
Gln   Leu Gln Asp Leu Cys   Val Pro Thr Thr Ile   Pro Thr Asp Met
15240   15245   15250

aac   caa atg caa ccg cag   ccg atc agc aag aac   gag aat cca cca   83297
Asn   Gln Met Gln Pro Gln   Pro Ile Ser Lys Asn   Glu Asn Pro Pro
15255   15260   15265

acc   cca cac acg gat gtg   taa atcatccatg ggccaatccg tcaactgcaa   83348
Thr   Pro His Thr Asp Val
15270   15275

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catgcatgga atcaccagaa cgatcacaac agacaagctt attttatta aagcacggct  83408

taacgagaga tccaatacat caacgcgaaa gggtggacgt ttttccacaa tttaacaaac  83468

ccccatgggt ttttagaatt tccaaattat cccgtttaat tgtacccatc ttcacgctca  83528

atgaacagtt atgttttct aaattacaga ttcgagatag acccaggttt gcgggacggg  83588

gaacgtatgg gcgtgttcat atatacccat cgtcaaaaat agctgtaaaa accatggaca  83648

gtcgtgtttt taatagagag ttaattaacg cgattttagc gagtgagggt tctatacgag  83708

cagggggaaag gctaggtatt tctagcatag tttgcctttt aggtttttcg ttacaaacca  83768

aacagctact gtttccggca tacgacatgg atatggatga atacattgtt cgcctgtcca  83828

gacggttgac aataacctgat cacatagaca gaaaaattgc ccatgtattt ttagatttgg  83888

ctcaagcgtt gacgtttta aatcgaacgt gcggcctgac ccacctagat gtgaaatgtg  83948

gcaatatttt tcttaacgtc gacaactttg cctcgttgga ataaccaca gcagtaatcg  84008

gagactatag cctagtaaca ttaaatacgt attccctttg tactcgagcg atatttgaag  84068

ttggaaatcc atcccacccg gagcacgtac tacgcgtacc ccgggatgca tcgcagatgt  84128

catttcgttt ggtgttgagt catggaacaa accaacccccc tgaaatcttg cttgattata  84188

ttaatggaac gggccttact aaatatactg gaaccttgcc ccaaagagtt ggacttgcga  84248

ttgatcttta tgcattgggc caagcactct tagaagttat cctgctagga cgtcttcccg  84308

gacaactgcc catttcagta catcggaccc cgcattatca ctactacggt cataagttat  84368

caccagattt ggcgcttgat acgctggcat atcgatgtgt cctggcgcca tatatactcc  84428

catctgacat ccccggggac ttaaattata atccctttat acacgccgga gagctgaaca  84488

cccgtatttc ccggaattct ttacgccgga tattccagtg tcacgcagtg cgttacggcg  84548

taacgcactc aaagctttc gaaggcatac gcattccggc ctcattatac ccagccactg  84608

ttgttacatc gttgttgtgt cacgataatt cagaaatacg ctcggatcac cctttatt  84666

atg gca cga tcg gga   ttg gat agg atc gac   ata agc ccc cag cca    84711
Met Ala Arg Ser Gly   Leu Asp Arg Ile Asp   Ile Ser Pro Gln Pro
              15280                 15285                   15290

gcc aaa aaa att gcc   cgt gtg gga ggt cta   cag cac cct ttt gta    84756
Ala Lys Lys Ile Ala   Arg Val Gly Gly Leu   Gln His Pro Phe Val
              15295                 15300                   15305

aaa acg gat att aac   acg att aac gtt gaa   cac cat ttt ata gac    84801
Lys Thr Asp Ile Asn   Thr Ile Asn Val Glu   His His Phe Ile Asp
              15310                 15315                   15320
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acg cta cag aag aca   tca ccg aac atg gac   tgt cgc ggg atg aca      84846
Thr Leu Gln Lys Thr   Ser Pro Asn Met Asp   Cys Arg Gly Met Thr
                15325                 15330                 15335

gcg ggt att ttt att   cgt tta tcc cac atg   tat aaa att cta aca      84891
Ala Gly Ile Phe Ile   Arg Leu Ser His Met   Tyr Lys Ile Leu Thr
                15340                 15345                 15350

act ctg gag tct cca   aat gat gta acc tac   aca aca ccc ggt tct      84936
Thr Leu Glu Ser Pro   Asn Asp Val Thr Tyr   Thr Thr Pro Gly Ser
                15355                 15360                 15365

acc aac gca ctg ttc   ttt aag acg tcc aca   cag cct cag gag ccg      84981
Thr Asn Ala Leu Phe   Phe Lys Thr Ser Thr   Gln Pro Gln Glu Pro
                15370                 15375                 15380

cgt ccg gaa gag tta   gca tcc aaa tta acc   caa gac gac att aaa      85026
Arg Pro Glu Glu Leu   Ala Ser Lys Leu Thr   Gln Asp Asp Ile Lys
                15385                 15390                 15395

cgt att cta tta aca   ata gaa tcg gag act   cgt ggt cag ggc gac      85071
Arg Ile Leu Leu Thr   Ile Glu Ser Glu Thr   Arg Gly Gln Gly Asp
                15400                 15405                 15410

aat gcc att tgg aca   cta ctc aga cga aat   tta atc acc gca tca      85116
Asn Ala Ile Trp Thr   Leu Leu Arg Arg Asn   Leu Ile Thr Ala Ser
                15415                 15420                 15425

act ctt aaa tgg agt   gta tct gga ccc gtc   att cca cct cag tgg      85161
Thr Leu Lys Trp Ser   Val Ser Gly Pro Val   Ile Pro Pro Gln Trp
                15430                 15435                 15440

ttt tac cac cat aac   act aca gac aca tac   ggt gat gcg gcg gca      85206
Phe Tyr His His Asn   Thr Thr Asp Thr Tyr   Gly Asp Ala Ala Ala
                15445                 15450                 15455

atg gcg ttt gga aaa   acc aac gaa ccg gcg   gca cga gcg ata gtt      85251
Met Ala Phe Gly Lys   Thr Asn Glu Pro Ala   Ala Arg Ala Ile Val
                15460                 15465                 15470

gaa gca ttg ttt ata   gat ccg gct gat atc   cgt act cct gat cat      85296
Glu Ala Leu Phe Ile   Asp Pro Ala Asp Ile   Arg Thr Pro Asp His
                15475                 15480                 15485

tta acg cca gaa gct   aca act aag ttt ttt   aat ttt gac atg ctc      85341
Leu Thr Pro Glu Ala   Thr Thr Lys Phe Phe   Asn Phe Asp Met Leu
                15490                 15495                 15500

aat acc aaa tct cca   agt ctc ctt gtg ggt   aca cca aga atc gga      85386
Asn Thr Lys Ser Pro   Ser Leu Leu Val Gly   Thr Pro Arg Ile Gly
                15505                 15510                 15515

acg tat gaa tgt gga   ctt tta atc gac gtt   cga acg gga ctt ata      85431
Thr Tyr Glu Cys Gly   Leu Leu Ile Asp Val   Arg Thr Gly Leu Ile
                15520                 15525                 15530

ggc gcg tcg ttg gac   gtt ctt gta tgt gac   agg gac cct tta act      85476
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118

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Gly Ala Ser Leu Asp    Val Leu Val Cys Asp    Arg Asp Pro Leu Thr
            15535               15540                  15545

ggc acc cta aat ccc    cac cct gca gaa acc    gac att tca ttt ttt    85521
Gly Thr Leu Asn Pro    His Pro Ala Glu Thr    Asp Ile Ser Phe Phe
            15550               15555                  15560

gaa att aaa tgt cgt    gct aaa tac ctc ttt    gat cca gat gac aaa    85566
Glu Ile Lys Cys Arg    Ala Lys Tyr Leu Phe    Asp Pro Asp Asp Lys
            15565               15570                  15575

aat aac ccg ctc ggt    cgg acg tac acc acg    tta ata aat aga cct    85611
Asn Asn Pro Leu Gly    Arg Thr Tyr Thr Thr    Leu Ile Asn Arg Pro
            15580               15585                  15590

aca atg gca aat cta    cgg gac ttt tta tat    act ata aaa aac cca    85656
Thr Met Ala Asn Leu    Arg Asp Phe Leu Tyr    Thr Ile Lys Asn Pro
            15595               15600                  15605

tgt gta agc ttc ttt    gga ccc tca gca aac    cca agt aca cgc gag    85701
Cys Val Ser Phe Phe    Gly Pro Ser Ala Asn    Pro Ser Thr Arg Glu
            15610               15615                  15620

gcc tta ata acg gat    cac gtt gaa tgg aaa    cgt tta gga ttt aaa    85746
Ala Leu Ile Thr Asp    His Val Glu Trp Lys    Arg Leu Gly Phe Lys
            15625               15630                  15635

ggt ggg agg gcc ctt    aca gaa ctc gac gcc    cat cat ttg ggc ctc    85791
Gly Gly Arg Ala Leu    Thr Glu Leu Asp Ala    His His Leu Gly Leu
            15640               15645                  15650

aat cgg aca atc tca    tcc cga gtg tgg gta    ttt aat gat ccg gac    85836
Asn Arg Thr Ile Ser    Ser Arg Val Trp Val    Phe Asn Asp Pro Asp
            15655               15660                  15665

ata caa aag ggg aca    att aca acc att gca    tgg gcc act gga gat    85881
Ile Gln Lys Gly Thr    Ile Thr Thr Ile Ala    Trp Ala Thr Gly Asp
            15670               15675                  15680

acg gct ctt caa att    cct gta ttt gcc aat    ccg cgg cac gct aac    85926
Thr Ala Leu Gln Ile    Pro Val Phe Ala Asn    Pro Arg His Ala Asn
            15685               15690                  15695

ttt aaa caa att gcc    gta caa acc tat gta    tta tcc ggt tac ttt    85971
Phe Lys Gln Ile Ala    Val Gln Thr Tyr Val    Leu Ser Gly Tyr Phe
            15700               15705                  15710

cca gcg cta aaa cta    cgg ccc ttc ctt gtc    acc ttt ata gga cgt    86016
Pro Ala Leu Lys Leu    Arg Pro Phe Leu Val    Thr Phe Ile Gly Arg
            15715               15720                  15725

gtg cgc cga cca cac    gag gtg gga gtc cca    ttg cgc gtc gat aca    86061
Val Arg Arg Pro His    Glu Val Gly Val Pro    Leu Arg Val Asp Thr
            15730               15735                  15740

caa gcg gct gcc att    tac gaa tat aac tgg    ccg act atc cca ccc    86106
Gln Ala Ala Ala Ile    Tyr Glu Tyr Asn Trp    Pro Thr Ile Pro Pro
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cac tgt gcg gtt ccg   gtt ata gcc gtt cta   acg cct atc gaa gtt   86151
His Cys Ala Val Pro   Val Ile Ala Val Leu   Thr Pro Ile Glu Val
                15760                 15765                 15770

gat gtg cct aga gtg   aca caa ata ctt aaa   gac aca gga aac aac   86196
Asp Val Pro Arg Val   Thr Gln Ile Leu Lys   Asp Thr Gly Asn Asn
                15775                 15780                 15785

gcg att aca tca gca   ttg cgg tca ttg cga   tgg gac aat ctt cat   86241
Ala Ile Thr Ser Ala   Leu Arg Ser Leu Arg   Trp Asp Asn Leu His
                15790                 15795                 15800

cca gcg gtc gag gag   gaa tct gtg gat tgt   gca aac ggt aca acg   86286
Pro Ala Val Glu Glu   Glu Ser Val Asp Cys   Ala Asn Gly Thr Thr
                15805                 15810                 15815

agc ttg tta cgt gca   acg gag aaa ccg ttg   ctt tga actcagagtt   86332
Ser Leu Leu Arg Ala   Thr Glu Lys Pro Leu   Leu
                15820                 15825
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ctttgaagac tttgactttg atgagaatgt aacagaggac gccgataaat ccacacaacg   86392

ccgcccacga gtgatcgatg taacaccaaa acgaaaacct tcgggaaaga gctcccattc   86452

caaatgcgca aaatgttaaa ccctgataaa ccctgataaa cgttctaata aaaacatcaa   86512

atcatggttg gttactgtga atgtttgttt tattgcttgg gggtttacaa gtacaaccca   86572

cgctactccc acccactgtt tgatcgctcg tataacagct catcctcgcg gtccgtttca   86632

tatgttgagt cattttcata gacgtagccg tagccttgtg atgggtaatt tgtgcggcga   86692

gaatttctat gtgcaggttt tacttttcgt atgtatcccc gtacccgctc gggtactctt   86752

cttacggcac cgtagaaccg actgcgtttc tgtcgatgat acacatatgc acgcatcaat   86812

ctgagaagca acatgacaac ggaaaacacg gccaggcaag ccaaggttcc ccgagttgtg   86872

ggaattaacc gtggagattg aaccgatata gggtcatata atcggtccat atacgagtgc   86932

gcggcggttc ccaacgtagc acaggccacg agcgttccca gggacggtcc tattaacacg   86992

tgtatataat gcgccaaaat taattctgat actataagat atacaactga caatgtacta   87052

aatgtagaca tggccacgga caccgatgac cacagtcccg tatgtagatg attcgccacc   87112

acaagttcca gcattaatga tacaaatagg atacatatcg ccatcaacgc agccatcaaa   87172

ttcacgaaca ctgcgcgcgt aggccccgca aggcgatata aaaagacgct ctgctgtcgt   87232

aaatttgcga ccgctttat gttcgtttcg tccaattttc cgcgtccaca aaaatacgtt   87292

gtaaatatta cacttgtcgc aaaatgtcca agatataatg tagcagccac gccgatttgc   87352

ttgtaagcta ataataacac aacggcgttt aataaccaca atgacaaaag accccaaaaa   87412

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agtgttgtgg gatctacaac taaccatgca acaccggagc tttgccggac acgttgattt   87472

ttcgtttctc ggtgtataat cgcggccgtg atcagtgtat ataccgccat ggccattgcc   87532

gttaaagccg tgtagtaagt aaatgccaca acgctatgtg gttccaaaaa caaaaccggg   87592

gcgctgtatc cacctctatt tccggaccat accccccat ctagggtggc gttaaataac     87652

tcataatcaa ctacggcagc ataaaaacaa gggatcccgg tatattcaga agaggcggca   87712

attaacgtag ccaggagcat taccgcaccc aaagtgaaca tcatcacctg aattatccaa   87772

attcgccaat taagcgtatc catttgatga tctaacgctt ccacctcggg tgtcgtggtg   87832

tcgtacggcg agacttttc agaacgcggc cccttctttt gagttccc atg tct ccc     87889
                                                     Met Ser Pro
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aac   acc ggg gag agc aac   gcc gcc gtc tat gcg   tcc agt aca cag   87934
Asn   Thr Gly Glu Ser Asn   Ala Ala Val Tyr Ala   Ser Ser Thr Gln
15830                 15835             15840

ctc   gcg cgg gcg tta tat   gga ggg gat ctg gtt   tcg tgg att aaa   87979
Leu   Ala Arg Ala Leu Tyr   Gly Gly Asp Leu Val   Ser Trp Ile Lys
15845                 15850             15855

cac   acc cac ccg gga att   agc ctg gaa ctg caa   ttg gat gtt cca   88024
His   Thr His Pro Gly Ile   Ser Leu Glu Leu Gln   Leu Asp Val Pro
15860                 15865             15870

gta   aaa cta ata aaa cct   ggt atg tca caa act   cgc ccg gta acc   88069
Val   Lys Leu Ile Lys Pro   Gly Met Ser Gln Thr   Arg Pro Val Thr
15875                 15880             15885

gtc   gta cgt gcc cct atg   ggc tct ggt aaa aca   aca gcc ttg ctt   88114
Val   Val Arg Ala Pro Met   Gly Ser Gly Lys Thr   Thr Ala Leu Leu
15890                 15895             15900

gag   tgg ctt caa cac gcg   tta aag gca gat att   agc gta ctg gtt   88159
Glu   Trp Leu Gln His Ala   Leu Lys Ala Asp Ile   Ser Val Leu Val
15905                 15910             15915

gtc   tca tgt cgc cgt agc   ttt acc cag acg ttg   att caa cgg ttt   88204
Val   Ser Cys Arg Arg Ser   Phe Thr Gln Thr Leu   Ile Gln Arg Phe
15920                 15925             15930

aac   gat gca ggc ctc tcc   gga ttc gta aca tat   ttg aca tcc gag   88249
Asn   Asp Ala Gly Leu Ser   Gly Phe Val Thr Tyr   Leu Thr Ser Glu
15935                 15940             15945

aca   tat att atg ggt ttt   aaa cgt ttg att gtg   caa ctt gaa agc   88294
Thr   Tyr Ile Met Gly Phe   Lys Arg Leu Ile Val   Gln Leu Glu Ser
15950                 15955             15960

cta   cac cgc gta tcc agc   gaa gct atc gac agc   tac gac gta tta   88339
Leu   His Arg Val Ser Ser   Glu Ala Ile Asp Ser   Tyr Asp Val Leu
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ata   ctg gat gag gta atg   tca gtg att gga caa   tta tac tcc ccc   88384
Ile   Leu Asp Glu Val Met   Ser Val Ile Gly Gln   Leu Tyr Ser Pro
15980   15985   15990

aca   atg aga cgt ctt tcc   gcg gtt gat agc cta   tta tat cgt ctt   88429
Thr   Met Arg Arg Leu Ser   Ala Val Asp Ser Leu   Leu Tyr Arg Leu
15995   16000   16005

tta   aat cgc tgt tct caa   att atc gcg atg gat   gct aca gta aac   88474
Leu   Asn Arg Cys Ser Gln   Ile Ile Ala Met Asp   Ala Thr Val Asn
16010   16015   16020

tcg   cag ttt att gat tta   atc tcc gga ttg cgt   gga gat gaa aac   88519
Ser   Gln Phe Ile Asp Leu   Ile Ser Gly Leu Arg   Gly Asp Glu Asn
16025   16030   16035

ata   cac aca att gtg tgt   aca tac gcg gga gtt   ggg ttc tcc gga   88564
Ile   His Thr Ile Val Cys   Thr Tyr Ala Gly Val   Gly Phe Ser Gly
16040   16045   16050

aga   act tgc acg atc ctg   cgt gat atg ggc atc   gac acg ctt gtg   88609
Arg   Thr Cys Thr Ile Leu   Arg Asp Met Gly Ile   Asp Thr Leu Val
16055   16060   16065

cga   gtc att aaa cga tct   cct gaa cac gag gat   gta cgt acc ata   88654
Arg   Val Ile Lys Arg Ser   Pro Glu His Glu Asp   Val Arg Thr Ile
16070   16075   16080

cac   caa cta cgt gga aca   ttt ttt gac gaa cta   gca cta cga tta   88699
His   Gln Leu Arg Gly Thr   Phe Phe Asp Glu Leu   Ala Leu Arg Leu
16085   16090   16095

caa   tgt ggg cat aac atc   tgt ata ttt tca tca   act tta tcg ttt   88744
Gln   Cys Gly His Asn Ile   Cys Ile Phe Ser Ser   Thr Leu Ser Phe
16100   16105   16110

tcg   gag cta gtt gct cag   ttt tgt gca ata ttt   aca gac tct att   88789
Ser   Glu Leu Val Ala Gln   Phe Cys Ala Ile Phe   Thr Asp Ser Ile
16115   16120   16125

ctt   att tta aac tca act   cgg ccc cta tgt aat   gta aac gaa tgg   88834
Leu   Ile Leu Asn Ser Thr   Arg Pro Leu Cys Asn   Val Asn Glu Trp
16130   16135   16140

aaa   cat ttt cgc gtg ttg   gtg tac act acc gtc   gtg acc gtt gga   88879
Lys   His Phe Arg Val Leu   Val Tyr Thr Thr Val   Val Thr Val Gly
16145   16150   16155

ttg   agt ttt gac atg gct   cat ttt cat agc atg   ttt gct tac ata   88924
Leu   Ser Phe Asp Met Ala   His Phe His Ser Met   Phe Ala Tyr Ile
16160   16165   16170

aag   cca atg tca tat ggg   ccg gat atg gta tcg   gtc tac cag tca   88969
Lys   Pro Met Ser Tyr Gly   Pro Asp Met Val Ser   Val Tyr Gln Ser
16175   16180   16185

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tta   ggg cgt gta cgt tta   ttg cta ctt aat gaa   gtt ttg atg tac   89014
Leu   Gly Arg Val Arg Leu   Leu Leu Leu Asn Glu   Val Leu Met Tyr
16190                 16195                 16200

gtc   gat ggc tca agg acc   aga tgc gga ccc ctg   ttc tcg cca atg   89059
Val   Asp Gly Ser Arg Thr   Arg Cys Gly Pro Leu   Phe Ser Pro Met
16205                 16210                 16215

tta   cta aac ttt acc atc   gca aat aaa ttt caa   tgg ttt cct aca   89104
Leu   Leu Asn Phe Thr Ile   Ala Asn Lys Phe Gln   Trp Phe Pro Thr
16220                 16225                 16230

cac   acc caa ata act aac   aaa ctg tgc tgt gca   ttt agg caa cga   89149
His   Thr Gln Ile Thr Asn   Lys Leu Cys Cys Ala   Phe Arg Gln Arg
16235                 16240                 16245

tgt   gca aat gca ttt aca   cgc tcg aac acc cat   ctc ttc tca aga   89194
Cys   Ala Asn Ala Phe Thr   Arg Ser Asn Thr His   Leu Phe Ser Arg
16250                 16255                 16260

ttt   aaa tac aaa cac ctt   ttc gag aga tgc tct   ctt tgg agt tta   89239
Phe   Lys Tyr Lys His Leu   Phe Glu Arg Cys Ser   Leu Trp Ser Leu
16265                 16270                 16275

gcc   gat agc att aat atc   tta caa act ctt ttg   gcc tct aac caa   89284
Ala   Asp Ser Ile Asn Ile   Leu Gln Thr Leu Leu   Ala Ser Asn Gln
16280                 16285                 16290

att   ttg gtt gta ttg gat   ggc atg ggt cca ata   acg gac gtt tcc   89329
Ile   Leu Val Val Leu Asp   Gly Met Gly Pro Ile   Thr Asp Val Ser
16295                 16300                 16305

cca   gtt caa ttt tgt gca   ttt ata cac gat ctc   aga cat agc gct   89374
Pro   Val Gln Phe Cys Ala   Phe Ile His Asp Leu   Arg His Ser Ala
16310                 16315                 16320

aac   gcc gta gct tcc tgt   atg cgt tct ctt aga   cag gac aat gac   89419
Asn   Ala Val Ala Ser Cys   Met Arg Ser Leu Arg   Gln Asp Asn Asp
16325                 16330                 16335

agc   tgc ttg acc gat ttt   ggc cct tcc gga ttt   atg gcc gat aac   89464
Ser   Cys Leu Thr Asp Phe   Gly Pro Ser Gly Phe   Met Ala Asp Asn
16340                 16345                 16350

att   acc gcg ttt atg gaa   aag tat ctt atg gag   tca att aat acc   89509
Ile   Thr Ala Phe Met Glu   Lys Tyr Leu Met Glu   Ser Ile Asn Thr
16355                 16360                 16365

gaa   gaa caa att aaa gta   ttt aaa gcc ctt gca   tgt cca ata gaa   89554
Glu   Glu Gln Ile Lys Val   Phe Lys Ala Leu Ala   Cys Pro Ile Glu
16370                 16375                 16380

cag   cct aga cta gtc aat   acg gca ata ttg ggg   gcg tgt ata cga   89599
Gln   Pro Arg Leu Val Asn   Thr Ala Ile Leu Gly   Ala Cys Ile Arg
16385                 16390                 16395
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ata     cct gaa gcg ttg gaa     gca ttt gac gta ttt     caa aaa ata tac  89644
Ile     Pro Glu Ala Leu Glu     Ala Phe Asp Val Phe     Gln Lys Ile Tyr
16400                   16405                   16410

acg     cac tac gct tcc ggt     tgg ttt ccc gtc ctg     gac aaa acc ggg  89689
Thr     His Tyr Ala Ser Gly     Trp Phe Pro Val Leu     Asp Lys Thr Gly
16415                   16420                   16425

gaa     ttt agc atc gcg act     ata act acc gcc cca     aat tta acc aca  89734
Glu     Phe Ser Ile Ala Thr     Ile Thr Thr Ala Pro     Asn Leu Thr Thr
16430                   16435                   16440

cat     tgg gag ctg ttt cgc     cgt tgt gcc tat att     gca aaa aca ctc  89779
His     Trp Glu Leu Phe Arg     Arg Cys Ala Tyr Ile     Ala Lys Thr Leu
16445                   16450                   16455

aag     tgg aat ccg tcc acc     gaa ggc tgt gta aca     caa gtt ttg gat  89824
Lys     Trp Asn Pro Ser Thr     Glu Gly Cys Val Thr     Gln Val Leu Asp
16460                   16465                   16470

acg     gac att aat aca ctt     ttc aat caa cac ggg     gat tcg ctg gct  89869
Thr     Asp Ile Asn Thr Leu     Phe Asn Gln His Gly     Asp Ser Leu Ala
16475                   16480                   16485

caa     cta ata ttt gag gtt     atg cgc tgt aac gtt     act gac gct aag  89914
Gln     Leu Ile Phe Glu Val     Met Arg Cys Asn Val     Thr Asp Ala Lys
16490                   16495                   16500

att     ata tta aac cgc ccg     gtt tgg cga aca acc     gga ttc tta gat  89959
Ile     Ile Leu Asn Arg Pro     Val Trp Arg Thr Thr     Gly Phe Leu Asp
16505                   16510                   16515

gga     tgc cat aat caa tgc     ttc cgt cca atc cct     aca aaa cac gaa  90004
Gly     Cys His Asn Gln Cys     Phe Arg Pro Ile Pro     Thr Lys His Glu
16520                   16525                   16530

tat     aac att gct cta ttt     cgt tta att tgg gaa     caa tta ttt ggc  90049
Tyr     Asn Ile Ala Leu Phe     Arg Leu Ile Trp Glu     Gln Leu Phe Gly
16535                   16540                   16545

gcc     cgc gta act aaa agt     acc cag acc ttt ccg     gga agt act cgt  90094
Ala     Arg Val Thr Lys Ser     Thr Gln Thr Phe Pro     Gly Ser Thr Arg
16550                   16555                   16560

gtg     aaa aac cta aaa aaa     aaa gat cta gaa act     tta ctt gat tca  90139
Val     Lys Asn Leu Lys Lys     Lys Asp Leu Glu Thr     Leu Leu Asp Ser
16565                   16570                   16575

att     aac gtg gat cgt tct     gca tgt cgt acc tac     cgc cag ttg tat  90184
Ile     Asn Val Asp Arg Ser     Ala Cys Arg Thr Tyr     Arg Gln Leu Tyr
16580                   16585                   16590

aac     ctg ctt atg agc cag     cgc cat tcg ttc tct     caa cag cgt tac  90229
Asn     Leu Leu Met Ser Gln     Arg His Ser Phe Ser     Gln Gln Arg Tyr
16595                   16600                   16605

aaa     att act gcc ccc gct     tgg gca cgc cac gtg     tat ttt caa gca  90274
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Lys     Ile Thr Ala Pro Ala     Trp Ala Arg His Val     Tyr Phe Gln Ala
16610                   16615                   16620

cat     caa atg cac ttg gcc     ccg cat gcc gaa gcc     atg cta caa tta     90319
His     Gln Met His Leu Ala     Pro His Ala Glu Ala     Met Leu Gln Leu
16625                   16630                   16635

gcg     cta tcg gaa ctg tcc     ccg gga tcg tgg ccg     cgg ata aac ggg     90364
Ala     Leu Ser Glu Leu Ser     Pro Gly Ser Trp Pro     Arg Ile Asn Gly
16640                   16645                   16650

gcg     gta aat ttt gaa agt     tta taa cccgttaata ccatatatgg               90408
Ala     Val Asn Phe Glu Ser     Leu
16655                   16660

acatccatag ggggggttac ataaatacta agcctctgta caacacaaag ggcctctaac          90468

aatgcactga accacaacca agct atg gac gca acg    cag att acc ttg              90516
                           Met Asp Ala Thr    Gln Ile Thr Leu
                                        16665

gtt     aga gaa agc gga cac     att tgt gcc gca agc     ata tac aca tcc     90561
Val     Arg Glu Ser Gly His     Ile Cys Ala Ala Ser     Ile Tyr Thr Ser
16670                   16675                   16680

tgg     aca cag tcc gga caa     tta aca cag aac ggt     ctt tcc gtg tta     90606
Trp     Thr Gln Ser Gly Gln     Leu Thr Gln Asn Gly     Leu Ser Val Leu
16685                   16690                   16695

tac     tac tta tta tgc aaa     aac tca tgt ggg aaa     tac gtc cct aag     90651
Tyr     Tyr Leu Leu Cys Lys     Asn Ser Cys Gly Lys     Tyr Val Pro Lys
16700                   16705                   16710

ttt     gcc gaa att acc gta     caa caa gag gat tta     tgt cgc tac tcc     90696
Phe     Ala Glu Ile Thr Val     Gln Gln Glu Asp Leu     Cys Arg Tyr Ser
16715                   16720                   16725

agg     cat ggg ggg agt gtt     tct gcg gca acg ttt     gcg tct atc tgc     90741
Arg     His Gly Gly Ser Val     Ser Ala Ala Thr Phe     Ala Ser Ile Cys
16730                   16735                   16740

agg     gcg gcg tcc tcg gct     gcg tta gac gcc tgg     ccc ctt gaa cca     90786
Arg     Ala Ala Ser Ser Ala     Ala Leu Asp Ala Trp     Pro Leu Glu Pro
16745                   16750                   16755

ctg     ggt aac gca gac acc     tgg cgt tgt ctc cat     ggc act gcc ctg     90831
Leu     Gly Asn Ala Asp Thr     Trp Arg Cys Leu His     Gly Thr Ala Leu
16760                   16765                   16770

gcc     act tta cgg cgc gta     tta ggg ttt aaa tcg     ttt tat tcg cca     90876
Ala     Thr Leu Arg Arg Val     Leu Gly Phe Lys Ser     Phe Tyr Ser Pro
16775                   16780                   16785

gta     aca ttc gag act gat     acg aat aca ggt ctt     ctg tta aaa aca     90921
Val     Thr Phe Glu Thr Asp     Thr Asn Thr Gly Leu     Leu Leu Lys Thr
16790                   16795                   16800
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atc   ccc gat gaa cac gcg   ttg aat aat gac aac   acg cca tct acc   90966
Ile   Pro Asp Glu His Ala   Leu Asn Asn Asp Asn   Thr Pro Ser Thr
16805                 16810                 16815

gga   gta ttg agg gct aat   ttt ccc gtg gcc att   gat gtt tca gca   91011
Gly   Val Leu Arg Ala Asn   Phe Pro Val Ala Ile   Asp Val Ser Ala
16820                 16825                 16830

gtc   agc gca tgt aac gcc   cac acg caa ggt acg   tcg cta gcc tac   91056
Val   Ser Ala Cys Asn Ala   His Thr Gln Gly Thr   Ser Leu Ala Tyr
16835                 16840                 16845

gcc   cgc ctg acc gca ctt   aaa tct aac ggt gac   acc cag caa caa   91101
Ala   Arg Leu Thr Ala Leu   Lys Ser Asn Gly Asp   Thr Gln Gln Gln
16850                 16855                 16860

aca   cct tta gac gtg gag   gta att aca cca aag   gcc tac ata cgt   91146
Thr   Pro Leu Asp Val Glu   Val Ile Thr Pro Lys   Ala Tyr Ile Arg
16865                 16870                 16875

cgg   aaa tat aag tct acg   ttt tcc ccc cct ata   gag cgg gaa ggc   91191
Arg   Lys Tyr Lys Ser Thr   Phe Ser Pro Pro Ile   Glu Arg Glu Gly
16880                 16885                 16890

caa   acc tcc gat ttg ttt   aac ctt gaa gaa cgc   cgc ttg gtt ctt   91236
Gln   Thr Ser Asp Leu Phe   Asn Leu Glu Glu Arg   Arg Leu Val Leu
16895                 16900                 16905

agt   ggc aat cgc gca att   gtg gta agg gta ctc   tta ccg tgt tat   91281
Ser   Gly Asn Arg Ala Ile   Val Val Arg Val Leu   Leu Pro Cys Tyr
16910                 16915                 16920

ttt   gac tgt tta aca acg   gat tcc acc gtt aca   tct tcc ctt tca   91326
Phe   Asp Cys Leu Thr Thr   Asp Ser Thr Val Thr   Ser Ser Leu Ser
16925                 16930                 16935

ata   tta gca aca tat aga   ctg tgg tac gcg gcg   gcg ttt gga aaa   91371
Ile   Leu Ala Thr Tyr Arg   Leu Trp Tyr Ala Ala   Ala Phe Gly Lys
16940                 16945                 16950

ccc   ggg gtt gtc cgt cca   atc ttt gcg tat tta   ggc ccg gaa ctc   91416
Pro   Gly Val Val Arg Pro   Ile Phe Ala Tyr Leu   Gly Pro Glu Leu
16955                 16960                 16965

aat   ccg aag ggt gaa gac   aga gac tac ttt tgt   act gtc gga ttt   91461
Asn   Pro Lys Gly Glu Asp   Arg Asp Tyr Phe Cys   Thr Val Gly Phe
16970                 16975                 16980

ccc   gga tgg acc act ctt   cgg aca caa act cca   gcc gtc gaa tct   91506
Pro   Gly Trp Thr Thr Leu   Arg Thr Gln Thr Pro   Ala Val Glu Ser
16985                 16990                 16995

att   cgc acg gct acg gag   atg tac atg gaa acg   gat ggg ttg tgg   91551
Ile   Arg Thr Ala Thr Glu   Met Tyr Met Glu Thr   Asp Gly Leu Trp
17000                 17005                 17010

cca   gta acc ggt att cag   gcc ttt cat tat cta   gcc ccc tgg gga   91596
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Pro   Val Thr Gly Ile Gln   Ala Phe His Tyr Leu   Ala Pro Trp Gly
17015                 17020                 17025

cag   cat ccc ccc tta cct   ccg cgg gtg cag gat   ctt att ggg caa   91641
Gln   His Pro Pro Leu Pro   Pro Arg Val Gln Asp   Leu Ile Gly Gln
17030                 17035                 17040

atc   cct caa gat act gga   cat gca gat gca act   gtc aat tgg gac   91686
Ile   Pro Gln Asp Thr Gly   His Ala Asp Ala Thr   Val Asn Trp Asp
17045                 17050                 17055

gcg   ggc cgg ata tct acc   gtc ttc aaa cag cct   gta caa cta caa   91731
Ala   Gly Arg Ile Ser Thr   Val Phe Lys Gln Pro   Val Gln Leu Gln
17060                 17065                 17070

gat   cgt tgg atg gca aag   ttt gat ttc agc gcc   ttt ttt ccc acg   91776
Asp   Arg Trp Met Ala Lys   Phe Asp Phe Ser Ala   Phe Phe Pro Thr
17075                 17080                 17085

ata   tac tgc gct atg ttc   ccc atg cat ttt aga   tta ggc aaa atc   91821
Ile   Tyr Cys Ala Met Phe   Pro Met His Phe Arg   Leu Gly Lys Ile
17090                 17095                 17100

gtc   ctg gct aga atg cgt   cga gga atg ggg tgc   cta aaa ccc gcg   91866
Val   Leu Ala Arg Met Arg   Arg Gly Met Gly Cys   Leu Lys Pro Ala
17105                 17110                 17115

ttg   gtg tct ttt ttt ggg   ggg tta cgg cac ata   ctc ccg agt ata   91911
Leu   Val Ser Phe Phe Gly   Gly Leu Arg His Ile   Leu Pro Ser Ile
17120                 17125                 17130

tac   aaa gct att att ttt   ata gcc aat gaa att   agc ctt tgc gtc   91956
Tyr   Lys Ala Ile Ile Phe   Ile Ala Asn Glu Ile   Ser Leu Cys Val
17135                 17140                 17145

gaa   caa acg gcc ttg gaa   cag ggc ttt gct ata   tgt act tat ata   92001
Glu   Gln Thr Ala Leu Glu   Gln Gly Phe Ala Ile   Cys Thr Tyr Ile
17150                 17155                 17160

aaa   gat gga ttt tgg gga   atc ttc acc gat tta   cat acg cgc aat   92046
Lys   Asp Gly Phe Trp Gly   Ile Phe Thr Asp Leu   His Thr Arg Asn
17165                 17170                 17175

gta   tgt tca gat cag gca   cgt tgt tcg gcc tta   aat tta gcg gcc   92091
Val   Cys Ser Asp Gln Ala   Arg Cys Ser Ala Leu   Asn Leu Ala Ala
17180                 17185                 17190

acc   tgc gaa aga gca gtc   acg ggc tta tta cga   att caa cta ggt   92136
Thr   Cys Glu Arg Ala Val   Thr Gly Leu Leu Arg   Ile Gln Leu Gly
17195                 17200                 17205

ctt   aac ttt aca ccc gcc   atg gaa ccg gta ctc   cgg gtc gag ggt   92181
Leu   Asn Phe Thr Pro Ala   Met Glu Pro Val Leu   Arg Val Glu Gly
17210                 17215                 17220

gtg   tac act cac gca ttt   acc tgg tgt acc acg   gga agc tgg ctg   92226
Val   Tyr Thr His Ala Phe   Thr Trp Cys Thr Thr   Gly Ser Trp Leu
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tgg   aat tta caa aca aac   acg cct ccg gat tta   gtt ggc gtg cca   92271
Trp   Asn Leu Gln Thr Asn   Thr Pro Pro Asp Leu   Val Gly Val Pro
17240   17245   17250

tgg   cga agt cag gcg gcg   cga gat tta aag gag   cgt ctt tca gga   92316
Trp   Arg Ser Gln Ala Ala   Arg Asp Leu Lys Glu   Arg Leu Ser Gly
17255   17260   17265

ctc   cta tgt acc gca aca   aaa att cga gaa cgg   ata cag gaa aat   92361
Leu   Leu Cys Thr Ala Thr   Lys Ile Arg Glu Arg   Ile Gln Glu Asn
17270   17275   17280

tgc   ata tgg gac cat gtc   cta tac gac ata tgg   gcc gga caa gtt   92406
Cys   Ile Trp Asp His Val   Leu Tyr Asp Ile Trp   Ala Gly Gln Val
17285   17290   17295

gtg   gag gct gcc aga aaa   aca tac gtc gat ttt   ttt gaa cat gtt   92451
Val   Glu Ala Ala Arg Lys   Thr Tyr Val Asp Phe   Phe Glu His Val
17300   17305   17310

ttt   gat cgc cgt tat act   ccg gta tac tgg agt   ctt cag gag caa   92496
Phe   Asp Arg Arg Tyr Thr   Pro Val Tyr Trp Ser   Leu Gln Glu Gln
17315   17320   17325

aat   tcg gaa aca aaa gca   ata ccg gca tct tat   ctg aca tac gga   92541
Asn   Ser Glu Thr Lys Ala   Ile Pro Ala Ser Tyr   Leu Thr Tyr Gly
17330   17335   17340

cac   atg caa gat aag gat   tat aaa cca aga cag   ata att atg gtt   92586
His   Met Gln Asp Lys Asp   Tyr Lys Pro Arg Gln   Ile Ile Met Val
17345   17350   17355

cgt   aat ccc aac cca cat   gga cct cct act gtt   gtt tac tgg gaa   92631
Arg   Asn Pro Asn Pro His   Gly Pro Pro Thr Val   Val Tyr Trp Glu
17360   17365   17370

ttg   cta cca tcg tgt gcc   tgt att ccc ccc ata   gac tgc gct gct   92676
Leu   Leu Pro Ser Cys Ala   Cys Ile Pro Pro Ile   Asp Cys Ala Ala
17375   17380   17385

cat   ctc aag ccc ctt ata   cac acg ttt gtc act   att att aac cat   92721
His   Leu Lys Pro Leu Ile   His Thr Phe Val Thr   Ile Ile Asn His
17390   17395   17400

ctt   cta gat gct cat aat   gat ttt tca agt cca   tca ttg aaa ttt   92766
Leu   Leu Asp Ala His Asn   Asp Phe Ser Ser Pro   Ser Leu Lys Phe
17405   17410   17415

act   gac gat ccc ctt gct   tca tat aac ttc ttg   ttt tta tga   92808
Thr   Asp Asp Pro Leu Ala   Ser Tyr Asn Phe Leu   Phe Leu
17420   17425   17430

caaaaaaaca cgccgcaaca acccatcctt aaaataaaag gtttatttac tttacaaccc   92868

gtggtgaatt tttatacgtt tcaaataact gaacattttt cggtgttacc atggtgcgat   92928

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ttaaccacca aaaatatacg ctcttctgat attccgaatc tcgtaaaggt ccatttaaca   92988

atcccggggg tacttgcacc acaccatctg gacagggggg ggttccgtgg ggcaggtcaa   93048

aacgctgacc caccccacat gaatatatag cctttataat attgggggcc gttccaggct   93108

gagggttcag taacttaaca aacatataat gcggcaatac gcgggttttt gtaaaggggt   93168

tgttatcaac gacatacatt agagtgttta acaaccataa aactccctca tataaaaacc   93228

gacgcatttt ttccaaaggt cctatttgac actcaacgcg tctaagatat acagacaatt   93288

gtacaaacag cgatggagat gccccggagg gcccaatgcc ttccagatac attaaaataa   93348

cacataaggt aaaatctagg acattatccg ggcggaatag agtcatccga tagattaaca   93408

ggcgcggagg cacccccacc gtatacaccc tatcttcaac cgcagttaat acggaaaaaa   93468

taaatccgcg gaacgctggt tgagtaacac actccatgta gtaacgatca caggacacct   93528

cacttgaatc accattcaac actactaaaa cggtctcttg gtgttccggt tttacgcgca   93588

gtgatacaac agagtttgcc aaaaagcgtg gcttcaaacc ggttacctcc cgcgcctcgc   93648

atacgaatct tggtattgct tgtattctaa gatcttcgat cacgtcgctc acatccaacc   93708

cctcttcggc tcgtgttagt aagttgtcga tcgttacgct gcaacctaaa atgctgggta   93768

tatttattcc ggacatccca tcggccatcc ccgcgcctcc ggtttgctcg aattttatcc   93828

agtaaggtcg aatccgctgc atttaccttg tgtacccgta acctctcagg ggggtgtcct   93888

ttcataaaat gggataggtt tttatatcca acatgcatgt attggttatt tattttattg   93948

ggttccggga ttctttcgtc atcttctgta gggtcaggca aaccccagga aggacttggt   94008

gttctccgtg ggccccgttt tattacctct gcgcgaacct gcatttcata taatattcgg   94068

atttgggata aataggactc tgttctcgcc tttttaaaaa tagcctggca taactcttcc   94128

tctgacctat gtacctcgct ttgagttacc aagaatccta atcgggtggc ccgtaatatg   94188

aatgaaaaat acggcgcaac tagtaatgag attgacgcat ttgaatatga tacagaaatt   94248

tcctggcctt gattattgtt tacccggtga agcttaaaac agcgaacaag ttcctgtttc   94308

catagctcag acaaacgttt tatatcatct ccataagggg ggatataacg agattgaaaa   94368

ctattggcaa tatatgcatc atcccctatt atgccggtaa gatctataac ctcgtgattt   94428

aaatcggcaa tacgtgtttc ttctgccatt gtaatatgtg acccttaga tggctttatt    94488

tttaccctct cttcccgtaa ccgtttcagc tctccttctt tgaactggag cctttcggtc   94548

agatcgctgt tcacatcctt gagaccctca atggttttga ataaattatt cacataaccc   94608
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tcgagcatgc cgttgatact gttaaccacc gaagtttta acgcactttg aacgtttgtt   94668

gttccggaca ttgcccccccc gttaaaggat tggttggcct tgccaaaccc cggttgtgat   94728

gtgtccaccg atccacttcc ttccagaatg tgattgcccg tttcttctag ataggaacgt   94788

acggtttcgg taatatctcc aacatgtctc atgttttta agttaactat tagctttaca   94848

agtctagacg cggccgatcc agcccgtgtt gtatcgttct cgcccattat acgatcaacc   94908

gcacgtgtgc tgtgagatct atcatcttca ttccggcgac ctattaacac gcgcaaaggg   94968

gctgtattta aaacttggca gacgcgagca tgttcacgta atgcataaca ggccaacacc   95028

tccccagaaa gccgctgtaa gggtgagtca aatactacac cctccccaca tacaacgggc   95088

ggccacacga ccaaacactc tcccttcatg cccgttacat catcctttgc cataattaat   95148

cttcggttat aattataata aagacgcgtc ctatcataat ccataatagc aacattttgc   95208

atacactcaa ctaggcttgt gacaaccgcc gctcctctgg ccaacgttgc atcggcaact   95268

tttaacatct gggacagttc tgccgcttga cccatatacg tatttaatgg tgcaggggtt   95328

ccattctgtt ctgatcgtac ctttcttaca acgggcacaa tacctacaca ggctatccag   95388

tccacgtatt tggcaaaacc gacccttcca tttaaaccac tggtatagag acaaccggtt   95448

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tgatgtgcaa gccgtacggc ttctgattct ccacatagcc cataacgttc cgctagagcc   95568

ccggcatgca ggttacattg ttggatgtgg tgttcccaat ctgctgctag gtcctcatac   95628

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atttttcgaa acaacatact ttgcgtggtt gggtgtatta acatccagcc atcttcctcc   95808

ggaaatgtac aaaaccctat atccggggcg tactcattcc agtatatatc gaacatgttc   95868

ttgtattggt catttgggtt acttccattc aagccctggt caatagaaac agaacttgct   95928

atcctttttt cttcactacc ggaactgtta ttaaaaagag acgttatttc ggccattgaa   95988
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aaccacg atg aaa aga    tca att tct gta gac    agt tct tca ccc aaa     96034
        Met Lys Arg    Ser Ile Ser Val Asp    Ser Ser Ser Pro Lys
                17435                  17440                  17445


aac gtt ttt aat cca    gag acg ccc aat gga    ttt gat gac agt gta     96079
Asn Val Phe Asn Pro    Glu Thr Pro Asn Gly    Phe Asp Asp Ser Val
                17450                  17455                  17460


tat tta aac ttc acc    tct atg cat agc att    caa cct atc ctc tca     96124
Tyr Leu Asn Phe Thr    Ser Met His Ser Ile    Gln Pro Ile Leu Ser
                17465                  17470                  17475
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cgg att cga gaa ctt   gcc gca att acg att   cca aaa gaa cgt gtt   96169
Arg Ile Arg Glu Leu   Ala Ala Ile Thr Ile   Pro Lys Glu Arg Val
            17480                  17485                  17490

ccg cgg ttg tgt tgg   ttt aaa cag tta ctc   gaa ctg caa gcg cct   96214
Pro Arg Leu Cys Trp   Phe Lys Gln Leu Leu   Glu Leu Gln Ala Pro
            17495                  17500                  17505

cct gaa atg cag agg   aat gag ctc ccc ttc   tcc gtt tat tta att   96259
Pro Glu Met Gln Arg   Asn Glu Leu Pro Phe   Ser Val Tyr Leu Ile
            17510                  17515                  17520

agc gga aat gcc ggc   tcc gga aaa agc acg   tgt atc caa acg ctt   96304
Ser Gly Asn Ala Gly   Ser Gly Lys Ser Thr   Cys Ile Gln Thr Leu
            17525                  17530                  17535

aac gaa gct atc gat   tgc att att acc gga   tcc acc agg gtt gct   96349
Asn Glu Ala Ile Asp   Cys Ile Ile Thr Gly   Ser Thr Arg Val Ala
            17540                  17545                  17550

gcc caa aat gtt cat   gct aag tta tca acg   gct tat gcg agt cgt   96394
Ala Gln Asn Val His   Ala Lys Leu Ser Thr   Ala Tyr Ala Ser Arg
            17555                  17560                  17565

ccg ata aac aca atc   ttt cat gaa ttt ggt   ttt cgc gga aat cac   96439
Pro Ile Asn Thr Ile   Phe His Glu Phe Gly   Phe Arg Gly Asn His
            17570                  17575                  17580

att cag gct cag ctg   ggc cgt tac gca tat   aac tgg act acg acc   96484
Ile Gln Ala Gln Leu   Gly Arg Tyr Ala Tyr   Asn Trp Thr Thr Thr
            17585                  17590                  17595

ccc cct tct att gag   gac ctg caa aaa aga   gat att gta tac tac   96529
Pro Pro Ser Ile Glu   Asp Leu Gln Lys Arg   Asp Ile Val Tyr Tyr
            17600                  17605                  17610

tgg gaa gtt tta att   gat ata aca aaa cga   gtg ttt caa atg ggg   96574
Trp Glu Val Leu Ile   Asp Ile Thr Lys Arg   Val Phe Gln Met Gly
            17615                  17620                  17625

gac gac ggt cgc gga   gga aca tcg aca ttt   aaa acc ctg tgg gca   96619
Asp Asp Gly Arg Gly   Gly Thr Ser Thr Phe   Lys Thr Leu Trp Ala
            17630                  17635                  17640

att gaa cgt ttg ctt   aat aaa cct aca ggc   tca atg tcc gga acc   96664
Ile Glu Arg Leu Leu   Asn Lys Pro Thr Gly   Ser Met Ser Gly Thr
            17645                  17650                  17655

gcg ttt atc gca tgc   ggt tcc ctt ccg gct   ttt acc cgg agc aac   96709
Ala Phe Ile Ala Cys   Gly Ser Leu Pro Ala   Phe Thr Arg Ser Asn
            17660                  17665                  17670

gtt att gtt att gat   gaa gca gga ttg cta   ggg cgt cat att ctc   96754
Val Ile Val Ile Asp   Glu Ala Gly Leu Leu   Gly Arg His Ile Leu
            17675                  17680                  17685
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acg gcc gtt gtt tac   tgt tgg tgg ctt ttg   aat gct ata tat caa        96799
Thr Ala Val Val Tyr   Cys Trp Trp Leu Leu   Asn Ala Ile Tyr Gln
            17690                 17695                  17700

agc cct cag tac ata   aac ggt cga aaa ccg   gtc ata gta tgc gtc        96844
Ser Pro Gln Tyr Ile   Asn Gly Arg Lys Pro   Val Ile Val Cys Val
            17705                 17710                  17715

ggt tcg ccc acc caa   act gac tcg tta gaa   tct cat ttt caa cat        96889
Gly Ser Pro Thr Gln   Thr Asp Ser Leu Glu   Ser His Phe Gln His
            17720                 17725                  17730

gac atg cag cgt tca   cac gta act cct agt   gaa aat ata ctc acg        96934
Asp Met Gln Arg Ser   His Val Thr Pro Ser   Glu Asn Ile Leu Thr
            17735                 17740                  17745

tat ata atc tgc aat   caa act ctg cgt caa   tat act aac atc tca        96979
Tyr Ile Ile Cys Asn   Gln Thr Leu Arg Gln   Tyr Thr Asn Ile Ser
            17750                 17755                  17760

cat aac tgg gca atc   ttt att aat aac aaa   cga tgt caa gag gac        97024
His Asn Trp Ala Ile   Phe Ile Asn Asn Lys   Arg Cys Gln Glu Asp
            17765                 17770                  17775

gat ttt gga aat ctt   tta aaa acg ctt gag   tac ggg cta cct att        97069
Asp Phe Gly Asn Leu   Leu Lys Thr Leu Glu   Tyr Gly Leu Pro Ile
            17780                 17785                  17790

acc gaa gca cat gcg   cgt ctg gtc gat aca   ttt gtt gta cct gca        97114
Thr Glu Ala His Ala   Arg Leu Val Asp Thr   Phe Val Val Pro Ala
            17795                 17800                  17805

tcc tat att aac aat   cct gct aat ctt ccc   gga tgg acg cgt ctg        97159
Ser Tyr Ile Asn Asn   Pro Ala Asn Leu Pro   Gly Trp Thr Arg Leu
            17810                 17815                  17820

tat tcg tcg cat aag   gag gtg agc gcg tat   atg agt aag tta cac        97204
Tyr Ser Ser His Lys   Glu Val Ser Ala Tyr   Met Ser Lys Leu His
            17825                 17830                  17835

gcg cat tta aaa cta   tcg aaa aat gac cat   ttt tct gtg ttt gcc        97249
Ala His Leu Lys Leu   Ser Lys Asn Asp His   Phe Ser Val Phe Ala
            17840                 17845                  17850

tta ccg act tat aca   ttc atc cgg cta acg   gca ttt gat gaa tac        97294
Leu Pro Thr Tyr Thr   Phe Ile Arg Leu Thr   Ala Phe Asp Glu Tyr
            17855                 17860                  17865

cgc aaa tta acg gga   caa ccc gga ctt tct   gtt gaa cat tgg ata        97339
Arg Lys Leu Thr Gly   Gln Pro Gly Leu Ser   Val Glu His Trp Ile
            17870                 17875                  17880

cgg gca aac tcc ggt   cgt ttg cac aat tat   tcc caa agc cga gat        97384
Arg Ala Asn Ser Gly   Arg Leu His Asn Tyr   Ser Gln Ser Arg Asp
            17885                 17890                  17895

cat gac atg gga aca   gtt aaa tac gaa aca   cat tca aat cgc gac        97429
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His Asp Met Gly Thr    Val Lys Tyr Glu Thr    His Ser Asn Arg Asp
              17900                  17905                  17910

tta att gta gcc cgt    aca gac atc act tac    gtg cta aat agt ctc    97474
Leu Ile Val Ala Arg    Thr Asp Ile Thr Tyr    Val Leu Asn Ser Leu
              17915                  17920                  17925

gta gtt gta acc aca    aga cta cgt aag tta    gtt att gga ttc agt    97519
Val Val Val Thr Thr    Arg Leu Arg Lys Leu    Val Ile Gly Phe Ser
              17930                  17935                  17940

ggt aca ttt caa tcg    ttt gca aag gtt tta    cgt gac gac tcc ttt    97564
Gly Thr Phe Gln Ser    Phe Ala Lys Val Leu    Arg Asp Asp Ser Phe
              17945                  17950                  17955

gtg aag gct cga gga    gag aca tcc atc gaa    tat gct tac cgg ttt    97609
Val Lys Ala Arg Gly    Glu Thr Ser Ile Glu    Tyr Ala Tyr Arg Phe
              17960                  17965                  17970

ctg tca aac cta atc    ttt gga ggc ttg att    aac ttt tac aat ttt    97654
Leu Ser Asn Leu Ile    Phe Gly Gly Leu Ile    Asn Phe Tyr Asn Phe
              17975                  17980                  17985

ttg tta aat aaa aac    cta cat ccc gat aag    gta tcg tta gca tac    97699
Leu Leu Asn Lys Asn    Leu His Pro Asp Lys    Val Ser Leu Ala Tyr
              17990                  17995                  18000

aaa cgg tta gct gcc    tta acc ctg gag tta    ttg tct gga aca aac    97744
Lys Arg Leu Ala Ala    Leu Thr Leu Glu Leu    Leu Ser Gly Thr Asn
              18005                  18010                  18015

aaa gcc ccc tta cac    gaa gca gcg gtt aat    ggg gcg ggt gcc ggg    97789
Lys Ala Pro Leu His    Glu Ala Ala Val Asn    Gly Ala Gly Ala Gly
              18020                  18025                  18030

att gac tgt gat ggt    gca gct act tct gcc    gat aaa gcc ttc tgc    97834
Ile Asp Cys Asp Gly    Ala Ala Thr Ser Ala    Asp Lys Ala Phe Cys
              18035                  18040                  18045

ttt acc aaa gcc ccc    gag tcc aaa gta acg    gcc tcc ata ccc gaa    97879
Phe Thr Lys Ala Pro    Glu Ser Lys Val Thr    Ala Ser Ile Pro Glu
              18050                  18055                  18060

gac ccg gat gat gta    att ttt acg gca ctt    aac gac gag gtt att    97924
Asp Pro Asp Asp Val    Ile Phe Thr Ala Leu    Asn Asp Glu Val Ile
              18065                  18070                  18075

gac ttg gta tac tgc    cag tac gaa ttt tcc    tat ccc aaa tca tcc    97969
Asp Leu Val Tyr Cys    Gln Tyr Glu Phe Ser    Tyr Pro Lys Ser Ser
              18080                  18085                  18090

aat gag gtc cat gct    cag ttt ctg tta atg    aaa gct att tac gat    98014
Asn Glu Val His Ala    Gln Phe Leu Leu Met    Lys Ala Ile Tyr Asp
              18095                  18100                  18105

ggt cga tat gcc ata    tta gca gag ctt ttc    gaa agc agc ttt aca    98059
Gly Arg Tyr Ala Ile    Leu Ala Glu Leu Phe    Glu Ser Ser Phe Thr
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           18110                       18115                       18120

acc gcc ccc ttt agc     gcg tat gtc gat aat     gtt aat ttc aac gga     98104
Thr Ala Pro Phe Ser     Ala Tyr Val Asp Asn     Val Asn Phe Asn Gly
               18125                       18130                       18135

agc gag ctt ttg atc     ggc aat gtg cgg ggg     ggg ctg tta tct ttg     98149
Ser Glu Leu Leu Ile     Gly Asn Val Arg Gly     Gly Leu Leu Ser Leu
               18140                       18145                       18150

gca tta caa aca gat     acg tat acc ctt ttg     ggg tat act ttt gca     98194
Ala Leu Gln Thr Asp     Thr Tyr Thr Leu Leu     Gly Tyr Thr Phe Ala
               18155                       18160                       18165

ccc gtg cca gtc ttt     gta gag gaa ctg acc     cga aaa aag ctg tac     98239
Pro Val Pro Val Phe     Val Glu Glu Leu Thr     Arg Lys Lys Leu Tyr
               18170                       18175                       18180

cgc gaa act acc gaa     atg tta tat gct cta     cac gta cct ctt atg     98284
Arg Glu Thr Thr Glu     Met Leu Tyr Ala Leu     His Val Pro Leu Met
               18185                       18190                       18195

gtc tta cag gat caa     cat ggg ttt gtg tcc     atc gta aac gct aac     98329
Val Leu Gln Asp Gln     His Gly Phe Val Ser     Ile Val Asn Ala Asn
               18200                       18205                       18210

gta tgt gaa ttt acc     gag tct ata gag gat     gca gaa ttg gca atg     98374
Val Cys Glu Phe Thr     Glu Ser Ile Glu Asp     Ala Glu Leu Ala Met
               18215                       18220                       18225

gcc acc acg gtg gac     tat ggc ctt agt tct     aaa cta gcc atg aca     98419
Ala Thr Thr Val Asp     Tyr Gly Leu Ser Ser     Lys Leu Ala Met Thr
               18230                       18235                       18240

att gca cgc tca cag     ggt ctg agt tta gag     aag gta gct atc tgt     98464
Ile Ala Arg Ser Gln     Gly Leu Ser Leu Glu     Lys Val Ala Ile Cys
               18245                       18250                       18255

ttt acg gcg gat aaa     ctg cgc cta aat agt     gtg tat gtt gcc atg     98509
Phe Thr Ala Asp Lys     Leu Arg Leu Asn Ser     Val Tyr Val Ala Met
               18260                       18265                       18270

tcg cgt acg gtc tcc     tct agg ttc tta aaa     atg aat cta aac cct     98554
Ser Arg Thr Val Ser     Ser Arg Phe Leu Lys     Met Asn Leu Asn Pro
               18275                       18280                       18285

cta cgg gaa cga tat     gaa aaa tcc gca gaa     att agc gat cac att     98599
Leu Arg Glu Arg Tyr     Glu Lys Ser Ala Glu     Ile Ser Asp His Ile
               18290                       18295                       18300

ctt gcc gct cta cgt     gat ccc aac gta cac     gtt gtg tat taa         98641
Leu Ala Ala Leu Arg     Asp Pro Asn Val His     Val Val Tyr
               18305                       18310

agcattgtat aaaaacacgc atgcgggctt gctgttctca tttctaggtt ttgtcttaaa     98701

tacacccgcc atgagcatct ctggacccccc aacgacgttt attttatata ggttacatgg    98761
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ggttaggcgg gttcttcact ggactttacc ggatcatgaa caaacactct acgcatttac  98821

gggtgggtca agatcaatgg cggtgaagac ggacgctcga tgtgatacaa tgagcggtgg  98881

tatgatcgtc cttcaacaca cccatacagt gaccctgcta accatagact gttctactga  98941

cttttcatca tacgcattta cgcaccggga tttccactta caggacaaac cccacgcaac  99001

atttgcgatg ccgtttatgt cctgggtcgg ttctgaccca acatctcagc tgtacagtaa  99061

tgtggggggg gtactatccg taataacgga agatgaccta tccatgtgta tctcaattgt  99121

tatatacggt ttacgggtaa acagacctga cgatcagacc acaccaacac caaccccgca  99181

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gcacgaatac tctcgtacag taggtttctg acacggggtg catgggtttt ttgacacaac  99841

acaaacattt gcaggctctt atgactggat ggattgaatt tatttttaga tagggtcacg  99901

tgtttttgtc gtgacacgcc tcgaccagaa aaggctgcgg ttttcgtaca cgcgaccgtt  99961

atttcacagg cgttcataac caagctgcgg cggatggtgt cggttaattg tctccgccca 100021

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gtaaaatcgt tctgaacact gtgttggctg gctacctgtt taaaatttgg gatcgaacac 100201

ggtccacgat gcaatcccca accccattga agcaatgccg tcggtacgga aggaggcaac 100261

tccgaaaaca ttatggtacg caagagggtc gattggagtg ttatataaca ctccaatcga 100321

tctcgggttc gcctttacgc gtaaaatact cattggcttg aacgaaatgt cgacaattcc 100381

gaaatggaac acgggacaat ggcgacggat gcgcgtgtgt tagcaccaga tgacatcttg 100441
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135

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aattcggttg ggttgtcttc tgtgcatgcg caccccacag cataaaaact aaccctgtac 100501

ggttctcgca taacctctgt agcacgcgtt gcaccagccg cccccagcct aagtatacat 100561

gcgaccccgg agtcccgcga cgaaccgtaa gcgtggtatt cagcaataac accccctgcc 100621

ttgcccaact ctccaggcat ccgtgagtgg gcggagtcat atttgggtat gattccatga 100681

gggccgcaaa aatattttta agactagacg gtggtgttat gccacgtttt acactaaacg 100741

ctagcccatg tgcatgtccc gcggtagggt atggatcttg accaataatt acaacgcgaa 100801

tgctctgggg tccgcaaaat cgcgtccatg caaaaatatc gcctgtagat ggaagtattt 100861

cttcccctga atttaaaaga cgattgtatt ctaaaaaaat acctttcgcg tacggctctt 100921

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gcttgcgggt tttttggta accggatggg ccaaaacata aatgtccttt gaatccgata 101161

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aaggtgacgt atggatttgt ccagtacgcc atttgtttgt ctttaaacca aagtataact 101401

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137

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139

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140

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atg ttt    tgc acc tca ccg gct    acg cgg ggc gac tcg    tcc gag tca 110625
Met Phe    Cys Thr Ser Pro Ala    Thr Arg Gly Asp Ser    Ser Glu Ser
   18315                  18320                  18325
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aaa ccc   ggg gca tcg gtt gat   gtt aac gga aag atg   gaa tat gga 110670
Lys Pro   Gly Ala Ser Val Asp   Val Asn Gly Lys Met   Glu Tyr Gly
    18330                18335                18340

tct gca   cca gga ccc ctg aac   ggc cgg gat acg tcg   cgg ggc ccc 110715
Ser Ala   Pro Gly Pro Leu Asn   Gly Arg Asp Thr Ser   Arg Gly Pro
    18345                18350                18355

ggc gcg   ttt tgt act ccg ggt   tgg gag atc cac ccg   gcc agg ctc 110760
Gly Ala   Phe Cys Thr Pro Gly   Trp Glu Ile His Pro   Ala Arg Leu
    18360                18365                18370

gtt gag   gac atc aac cgt gtt   ttt tta tgt att gca   cag tcg tcg 110805
Val Glu   Asp Ile Asn Arg Val   Phe Leu Cys Ile Ala   Gln Ser Ser
    18375                18380                18385

gga cgc   gtc acg cga gat tca   cga aga ttg cgg cgc   ata tgc ctc 110850
Gly Arg   Val Thr Arg Asp Ser   Arg Arg Leu Arg Arg   Ile Cys Leu
    18390                18395                18400

gac ttt   tat cta atg ggt cgc   acc aga cag cgt ccc   acg tta gcg 110895
Asp Phe   Tyr Leu Met Gly Arg   Thr Arg Gln Arg Pro   Thr Leu Ala
    18405                18410                18415

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Cys Trp   Glu Glu Leu Leu Gln   Leu Gln Pro Thr Gln   Thr Gln Cys
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Leu Arg   Ala Thr Leu Met Glu   Val Ser His Arg Pro   Pro Arg Gly
    18435                18440                18445

gaa gac   ggg ttc att gag gcg   ccg aat gtt cct ttg   cat agg agc 111030
Glu Asp   Gly Phe Ile Glu Ala   Pro Asn Val Pro Leu   His Arg Ser
    18450                18455                18460

gca ctg   gaa tgt gac gta tct   gat gat ggt ggt gaa   gac gat agc 111075
Ala Leu   Glu Cys Asp Val Ser   Asp Asp Gly Gly Glu   Asp Asp Ser
    18465                18470                18475

gac gat   gat ggg tct acg cca   tcg gat gta att gaa   ttt cgg gat 111120
Asp Asp   Asp Gly Ser Thr Pro   Ser Asp Val Ile Glu   Phe Arg Asp
    18480                18485                18490

tcc gac   gcg gaa tca tcg gac   ggg gaa gac ttt ata   gtg gaa gaa 111165
Ser Asp   Ala Glu Ser Ser Asp   Gly Glu Asp Phe Ile   Val Glu Glu
    18495                18500                18505

gaa tca   gag gag agc acc gat   tct tgt gaa cca gac   ggg gta ccc 111210
Glu Ser   Glu Glu Ser Thr Asp   Ser Cys Glu Pro Asp   Gly Val Pro
    18510                18515                18520

ggc gat   tgt tat cga gac ggg   gat ggg tgc aac acc   ccg tcc cca 111255
Gly Asp   Cys Tyr Arg Asp Gly   Asp Gly Cys Asn Thr   Pro Ser Pro
    18525                18530                18535

aag aga   ccc cag cgt gcc atc   gag cga tac gcg ggt   gca gaa acc 111300
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142

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Ala Glu   Tyr Thr Ala Ala Lys   Ala Leu Thr Ala Leu   Gly Glu Gly
    18555                 18560                 18565

ggt gta   gat tgg aag cga cgt   cga cac gaa gcc ccg   cgc cgg cat 111390
Gly Val   Asp Trp Lys Arg Arg   Arg His Glu Ala Pro   Arg Arg His
    18570                 18575                 18580

gat ata   ccg ccc ccc cat ggc   gtg tag tctttataaa taaatacaat     111437
Asp Ile   Pro Pro Pro His Gly   Val
    18585                 18590


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gtgtggt atg aat ctc tgc   gga tcc cgc ggt gag   cac ccg ggc ggt     111603
        Met Asn Leu Cys   Gly Ser Arg Gly Glu   His Pro Gly Gly
                18595                 18600

gaa   tat gcc gga ctt tac   tgc aca cga cac gat   acc ccc gcg cac 111648
Glu   Tyr Ala Gly Leu Tyr   Cys Thr Arg His Asp   Thr Pro Ala His
18605                 18610                 18615

cag   gct ctc atg aac gac   gcc gaa cgg tac ttc   gcc gcc gcg cta 111693
Gln   Ala Leu Met Asn Asp   Ala Glu Arg Tyr Phe   Ala Ala Ala Leu
18620                 18625                 18630

tgc   gcc ata tct acc gag   gcc tac gag gct ttt   ata cac agc ccc 111738
Cys   Ala Ile Ser Thr Glu   Ala Tyr Glu Ala Phe   Ile His Ser Pro
18635                 18640                 18645

tcc   gag aga ccg tgc gcg   agt ttg tgg ggg agg   gca aag gac gcc 111783
Ser   Glu Arg Pro Cys Ala   Ser Leu Trp Gly Arg   Ala Lys Asp Ala
18650                 18655                 18660

ttc   gga cgg atg tgc ggg   gag ctc gca gcg gat   aga caa cgt cca 111828
Phe   Gly Arg Met Cys Gly   Glu Leu Ala Ala Asp   Arg Gln Arg Pro
18665                 18670                 18675

ccc   tcg gtt ccg ccg atc   cgc aga gcg gtg tta   tcg tta tta cgc 111873
Pro   Ser Val Pro Pro Ile   Arg Arg Ala Val Leu   Ser Leu Leu Arg
18680                 18685                 18690

gag   caa tgc atg ccg gat   cca caa tcg cat ctg   gag ctc agc gag 111918
Glu   Gln Cys Met Pro Asp   Pro Gln Ser His Leu   Glu Leu Ser Glu
18695                 18700                 18705

cgg   ctg ata ttg atg gca   tat tgg tgc tgt ttg   gga cac gcc gga 111963
Arg   Leu Ile Leu Met Ala   Tyr Trp Cys Cys Leu   Gly His Ala Gly
18710                 18715                 18720

ctt   ccg act att gga ttg   tcg ccc gat aat aaa   tgc atc cgc gcc 112008
Leu   Pro Thr Ile Gly Leu   Ser Pro Asp Asn Lys   Cys Ile Arg Ala
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143

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gaa    tta tat gac cgc ccc    ggg gga att tgt cac    agg ctt ttt gac 112053
Glu    Leu Tyr Asp Arg Pro    Gly Gly Ile Cys His    Arg Leu Phe Asp
18740                        18745                    18750
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gcg    tac ctg ggc tgc ggg    tcc ctt gga gtc cca    aga acc tac gag 112098
Ala    Tyr Leu Gly Cys Gly    Ser Leu Gly Val Pro    Arg Thr Tyr Glu
18755                        18760                    18765
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aga    tcc tga caccccatcc ctttatatag aaaaaaaaaa taaatttaaa          112147
Arg    Ser
18770
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ctccaatcgc gttaccaaac tcttcttccg tatccgtaga ttccgagtcc tcgaaatcgt 112327

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gttgatattt tccaattcga cgcaaaaatt catctgccgt ttcattttcg ctatcactat 112507

aataacactt ttcagccgaa cggctcggtt gtatggctgt tatcgttgta ttatttggtt 112567

gcgctcgcgg ggttaccacc gcttccatca gtaaggccac ggcctcaccc tccatggtgt 112627

tttgtccggc catagaaatc cagattgtaa ggccagcagg ctagtttaaa agtgtttaat 112687

accacacctt ttgatattta tatacatgca agattctaga ttattcatca ataggtcgtt 112747

taaagcgcgt tttcataaac gttgtcagct ataccgacat tctcacaaag aggtaaagtt 112807

accttacgtt attattaaat aaaacatgta gacattatta ataatcctag gaacaatcaa 112867

atccatattt gtaagttatg tttaacccct cccctttttg tcattatctc cgccctctta 112927

taatcggatc actttataag tgtgtcggtg agtatatttt gtacagttgt tggacaacag 112987

gtttttggtt cattaacact atcaacataa gtcggggtat acaagtata atg aac gac 113045
                                                          Met Asn Asp
```

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gtt    gat gca aca gac acc    ttt gtt gga caa gga    aag ttc cgt ggc 113090
Val    Asp Ala Thr Asp Thr    Phe Val Gly Gln Gly    Lys Phe Arg Gly
18775                        18780                    18785
```

```
gcc    atc tca aca tca ccg    tca cat att atg caa    aca tgt ggg ttt 113135
Ala    Ile Ser Thr Ser Pro    Ser His Ile Met Gln    Thr Cys Gly Phe
18790                        18795                    18800
```

```
ata    caa cag atg ttt cca    gtt gaa atg tcg ccc    ggc ata gaa tct 113180
Ile    Gln Gln Met Phe Pro    Val Glu Met Ser Pro    Gly Ile Glu Ser
18805                        18810                    18815
```

144

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gag     gat gat ccc aat tat     gac gtt aac atg gat     ata cag tct ttt 113225
Glu     Asp Asp Pro Asn Tyr     Asp Val Asn Met Asp     Ile Gln Ser Phe
18820                   18825                   18830

aat     ata ttt gat ggt gta     cac gaa act gaa gcc     gaa gcc tct gtg 113270
Asn     Ile Phe Asp Gly Val     His Glu Thr Glu Ala     Glu Ala Ser Val
18835                   18840                   18845

gca     ttg tgc gca gaa gca     cgc gtt gga att aat     aaa gcg gga ttt 113315
Ala     Leu Cys Ala Glu Ala     Arg Val Gly Ile Asn     Lys Ala Gly Phe
18850                   18855                   18860

gta     ata tta aaa acg ttt     aca cca ggg gcg gaa     ggt ttt gcg ttt 113360
Val     Ile Leu Lys Thr Phe     Thr Pro Gly Ala Glu     Gly Phe Ala Phe
18865                   18870                   18875

gcg     tgt atg gac agt aaa     aca tgt gaa cat gtg     gtc att aaa gcg 113405
Ala     Cys Met Asp Ser Lys     Thr Cys Glu His Val     Val Ile Lys Ala
18880                   18885                   18890

ggt     caa cgt caa gga acg     gcc acc gag gca acc     gtg tta aga gcg 113450
Gly     Gln Arg Gln Gly Thr     Ala Thr Glu Ala Thr     Val Leu Arg Ala
18895                   18900                   18905

tta     acc cac cca tcc gtt     gta cag ctt aaa gga     acg ttt acg tat 113495
Leu     Thr His Pro Ser Val     Val Gln Leu Lys Gly     Thr Phe Thr Tyr
18910                   18915                   18920

aac     aaa atg aca tgt ctt     ata tta cca cgt tac     cga aca gat tta 113540
Asn     Lys Met Thr Cys Leu     Ile Leu Pro Arg Tyr     Arg Thr Asp Leu
18925                   18930                   18935

tac     tgc tat cta gct gca     aag cgc aac ctc ccc     ata tgt gac att 113585
Tyr     Cys Tyr Leu Ala Ala     Lys Arg Asn Leu Pro     Ile Cys Asp Ile
18940                   18945                   18950

tta     gca att cag cga tct     gta tta cgc gcg tta     cag tat ctt cat 113630
Leu     Ala Ile Gln Arg Ser     Val Leu Arg Ala Leu     Gln Tyr Leu His
18955                   18960                   18965

aat     aac agt att att cac     cgt gat ata aaa tct     gaa aat ata ttt 113675
Asn     Asn Ser Ile Ile His     Arg Asp Ile Lys Ser     Glu Asn Ile Phe
18970                   18975                   18980

att     aac cac cca ggt gat     gtt tgt gtg gga gac     ttt gga gca gcg 113720
Ile     Asn His Pro Gly Asp     Val Cys Val Gly Asp     Phe Gly Ala Ala
18985                   18990                   18995

tgt     ttc ccc gtg gat att     aat gcc aac agg tat     tat ggc tgg gct 113765
Cys     Phe Pro Val Asp Ile     Asn Ala Asn Arg Tyr     Tyr Gly Trp Ala
19000                   19005                   19010

gga     aca atc gcc aca aac     tct cct gag tta ttg     gct aga gat cca 113810
Gly     Thr Ile Ala Thr Asn     Ser Pro Glu Leu Leu     Ala Arg Asp Pro
19015                   19020                   19025
```

145

```
tat     gga cct gcc gtg gac     ata tgg agt gcc ggg     att gta tta ttt 113855
Tyr     Gly Pro Ala Val Asp     Ile Trp Ser Ala Gly     Ile Val Leu Phe
19030                   19035                   19040


gaa     atg gct aca gga cag     aac tcg tta ttt gaa     cga gac ggt tta 113900
Glu     Met Ala Thr Gly Gln     Asn Ser Leu Phe Glu     Arg Asp Gly Leu
19045                   19050                   19055


gat     ggc aat tgt gac agt     gag cgt caa att aaa     ctt att ata cga 113945
Asp     Gly Asn Cys Asp Ser     Glu Arg Gln Ile Lys     Leu Ile Ile Arg
19060                   19065                   19070


cga     tct gga act cat ccc     aat gaa ttt ccc att     aac cct aca tca 113990
Arg     Ser Gly Thr His Pro     Asn Glu Phe Pro Ile     Asn Pro Thr Ser
19075                   19080                   19085


aat     ctt cgt cga caa tac     att ggt ttg gca aaa     cgg tct tct cga 114035
Asn     Leu Arg Arg Gln Tyr     Ile Gly Leu Ala Lys     Arg Ser Ser Arg
19090                   19095                   19100


aaa     ccc gga tcc agg cca     ttg tgg aca aat cta     tat gag ttg cca 114080
Lys     Pro Gly Ser Arg Pro     Leu Trp Thr Asn Leu     Tyr Glu Leu Pro
19105                   19110                   19115


att     gat ttg gag tat ttg     ata tgt aag atg tta     tcg ttt gac gca 114125
Ile     Asp Leu Glu Tyr Leu     Ile Cys Lys Met Leu     Ser Phe Asp Ala
19120                   19125                   19130


cgt     cat cga cca tca gca     gag gtg ttg ctt aac     cac tct gtt ttc 114170
Arg     His Arg Pro Ser Ala     Glu Val Leu Leu Asn     His Ser Val Phe
19135                   19140                   19145


caa     act ctt ccc gat cca     tat cca aat cca atg     gaa gtt gga gat 114215
Gln     Thr Leu Pro Asp Pro     Tyr Pro Asn Pro Met     Glu Val Gly Asp
19150                   19155                   19160


taa aattcattaa gcctgttaat aaaatattgt ataaattgtg tttataacgt       114268


ataacccgtt aaggcaaata gggtacaaac gcgcaatgtt ttgaaatact aatataaata 114328


acataaccaa tagaaactta atacagagtc acgccccatt acaacaagga taaaacacgg 114388


gatcattttc ttaacattgt agtagcgctg aaaagcgtcc cctcccccgg ctcacagagc 114448


tgctcttcgg tgtagttggg tatactggtg cgcctcattt aatcgcg atg     ttt tta 114504
                                                    Met     Phe Leu
                                                    19165


atc caa tgt     ttg ata tcg gcc gtt     ata ttt tac ata caa     gtg acc 114549
Ile Gln Cys     Leu Ile Ser Ala Val     Ile Phe Tyr Ile Gln     Val Thr
        19170                   19175                   19180


aac gct ttg     atc ttc aag ggc gac     cac gtg agc ttg caa     gtt aac 114594
Asn Ala Leu     Ile Phe Lys Gly Asp     His Val Ser Leu Gln     Val Asn
        19185                   19190                   19195


agc agt ctc     acg tct atc ctt att     ccc atg caa aat gat     aat tat 114639
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146

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Ser Ser Leu    Thr Ser Ile Leu Ile    Pro Met Gln Asn Asp    Asn Tyr
        19200                  19205                  19210

aca gag ata    aaa gga cag ctt gtc    ttt att gga gag caa    cta cct 114684
Thr Glu Ile    Lys Gly Gln Leu Val    Phe Ile Gly Glu Gln    Leu Pro
        19215                  19220                  19225

acc ggg aca    aac tat agc gga aca    ctg gaa ctg tta tac    gcg gat 114729
Thr Gly Thr    Asn Tyr Ser Gly Thr    Leu Glu Leu Leu Tyr    Ala Asp
        19230                  19235                  19240

acg gtg gcg    ttt tgt ttc cgg tca    gta caa gta ata aga    tac gac 114774
Thr Val Ala    Phe Cys Phe Arg Ser    Val Gln Val Ile Arg    Tyr Asp
        19245                  19250                  19255

gga tgt ccc    cgg att aga acg agc    gct ttt att tcg tgt    agg tac 114819
Gly Cys Pro    Arg Ile Arg Thr Ser    Ala Phe Ile Ser Cys    Arg Tyr
        19260                  19265                  19270

aaa cat tcg    tgg cat tat ggt aac    tca acg gat cgg ata    tca aca 114864
Lys His Ser    Trp His Tyr Gly Asn    Ser Thr Asp Arg Ile    Ser Thr
        19275                  19280                  19285

gag ccg gat    gct ggt gta atg ttg    aaa att acc aaa ccg    gga ata 114909
Glu Pro Asp    Ala Gly Val Met Leu    Lys Ile Thr Lys Pro    Gly Ile
        19290                  19295                  19300

aat gat gct    ggt gtg tat gta ctt    ctt gtt cgg tta gac    cat agc 114954
Asn Asp Ala    Gly Val Tyr Val Leu    Leu Val Arg Leu Asp    His Ser
        19305                  19310                  19315

aga tcc acc    gat ggt ttc att ctt    ggt gta aat gta tat    aca gcg 114999
Arg Ser Thr    Asp Gly Phe Ile Leu    Gly Val Asn Val Tyr    Thr Ala
        19320                  19325                  19330

ggc tcg cat    cac aac att cac ggg    gtt atc tac act tct    ccg tct 115044
Gly Ser His    His Asn Ile His Gly    Val Ile Tyr Thr Ser    Pro Ser
        19335                  19340                  19345

cta cag aat    gga tat tct aca aga    gcc ctt ttt caa caa    gct cgt 115089
Leu Gln Asn    Gly Tyr Ser Thr Arg    Ala Leu Phe Gln Gln    Ala Arg
        19350                  19355                  19360

ttg tgt gat    tta ccc gcg aca ccc    aaa ggg tcc ggt acc    tcc ctg 115134
Leu Cys Asp    Leu Pro Ala Thr Pro    Lys Gly Ser Gly Thr    Ser Leu
        19365                  19370                  19375

ttt caa cat    atg ctt gat ctt cgt    gcc ggt aaa tcg tta    gag gat 115179
Phe Gln His    Met Leu Asp Leu Arg    Ala Gly Lys Ser Leu    Glu Asp
        19380                  19385                  19390

aac cct tgg    tta cat gag gac gtt    gtt acg aca gaa act    aag tcc 115224
Asn Pro Trp    Leu His Glu Asp Val    Val Thr Thr Glu Thr    Lys Ser
        19395                  19400                  19405

gtt gtt aag    gag ggg ata gaa aat    cac gta tat cca acg    gat atg 115269
Val Val Lys    Glu Gly Ile Glu Asn    His Val Tyr Pro Thr    Asp Met
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147

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              19410                      19415                      19420

tcc acg tta  ccc gaa aag tcc ctt  aat gat cct cca gaa  aat cta 115314
Ser Thr Leu  Pro Glu Lys Ser Leu  Asn Asp Pro Pro Glu  Asn Leu
          19425                  19430                  19435

ctt ata att  att cct ata gta gcg  tct gtc atg atc ctc  acc gcc 115359
Leu Ile Ile  Ile Pro Ile Val Ala  Ser Val Met Ile Leu  Thr Ala
          19440                  19445                  19450

atg gtt att  gtt att gta ata agc  gtt aag cga cgt aga  att aaa 115404
Met Val Ile  Val Ile Val Ile Ser  Val Lys Arg Arg Arg  Ile Lys
          19455                  19460                  19465

aaa cat cca  att tat cgc cca aat  aca aaa aca aga agg  ggc ata 115449
Lys His Pro  Ile Tyr Arg Pro Asn  Thr Lys Thr Arg Arg  Gly Ile
          19470                  19475                  19480

caa aat gcg  aca cca gaa tcc gat  gtg atg ttg gag gcc  gcc att 115494
Gln Asn Ala  Thr Pro Glu Ser Asp  Val Met Leu Glu Ala  Ala Ile
          19485                  19490                  19495

gca caa cta  gca acg att cgc gaa  gaa tcc ccc cca cat  tcc gtt 115539
Ala Gln Leu  Ala Thr Ile Arg Glu  Glu Ser Pro Pro His  Ser Val
          19500                  19505                  19510

gta aac ccg  ttt gtt aaa tag aactaattat cccggatttt atattaaata    115590
Val Asn Pro  Phe Val Lys
          19515

aactatatgc gttttattta gcgttttgat tacgcgttgt gatatgaggg gaaggattaa 115650

gaatctccta actataagtt aacacgccca catttgggcg gggatgtttt atgaagcctt 115710

aaaggccgag ctggtataca cgagagcagt ccatggtttt agacctcggg cgaattgcgt 115770

ggttttaagt gactatattc cgagggtcgc ctgtaat atg ggg   aca gtt aat    115822
                                           Met Gly   Thr Val Asn
                                                  19520

aaa cct  gtg gtg ggg gta ttg  atg ggg ttc gga att  atc acg gga 115867
Lys Pro  Val Val Gly Val Leu  Met Gly Phe Gly Ile  Ile Thr Gly
      19525                  19530                  19535

acg ttg  cgt ata acg aat ccg  gtc aga gca tcc gtc  ttg cga tac 115912
Thr Leu  Arg Ile Thr Asn Pro  Val Arg Ala Ser Val  Leu Arg Tyr
      19540                  19545                  19550

gat gat  ttt cac acc gat gaa  gac aaa ctg gat aca  aac tcc gta 115957
Asp Asp  Phe His Thr Asp Glu  Asp Lys Leu Asp Thr  Asn Ser Val
      19555                  19560                  19565

tat gag  cct tac tac cat tca  gat cat gcg gag tct  tca tgg gta 116002
Tyr Glu  Pro Tyr Tyr His Ser  Asp His Ala Glu Ser  Ser Trp Val
      19570                  19575                  19580

aat cgg  gga gag tct tcg cga  aaa gcg tac gat cat  aac tca cct 116047
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148

```
Asn Arg  Gly Glu Ser Ser Arg  Lys Ala Tyr Asp His  Asn Ser Pro
    19585                19590                19595


tat ata  tgg cca cgt aat gat  tat gat gga ttt tta  gag aac gca 116092
Tyr Ile  Trp Pro Arg Asn Asp  Tyr Asp Gly Phe Leu  Glu Asn Ala
    19600                19605                19610


cac gaa  cac cat ggg gtg tat  aat cag ggc cgt ggt  atc gat agc 116137
His Glu  His His Gly Val Tyr  Asn Gln Gly Arg Gly  Ile Asp Ser
    19615                19620                19625


ggg gaa  cgg tta atg caa ccc  aca caa atg tct gca  cag gag gat 116182
Gly Glu  Arg Leu Met Gln Pro  Thr Gln Met Ser Ala  Gln Glu Asp
    19630                19635                19640


ctt ggg  gac gat acg ggc atc  cac gtt atc cct acg  tta aac ggc 116227
Leu Gly  Asp Asp Thr Gly Ile  His Val Ile Pro Thr  Leu Asn Gly
    19645                19650                19655


gat gac  aga cat aaa att gta  aat gtg gac caa cgt  caa tac ggt 116272
Asp Asp  Arg His Lys Ile Val  Asn Val Asp Gln Arg  Gln Tyr Gly
    19660                19665                19670


gac gtg  ttt aaa gga gat ctt  aat cca aaa ccc caa  ggc caa aga 116317
Asp Val  Phe Lys Gly Asp Leu  Asn Pro Lys Pro Gln  Gly Gln Arg
    19675                19680                19685


ctc att  gag gtg tca gtg gaa  gaa aat cac ccg ttt  act tta cgc 116362
Leu Ile  Glu Val Ser Val Glu  Glu Asn His Pro Phe  Thr Leu Arg
    19690                19695                19700


gca ccg  att cag cgg att tat  gga gtc cgg tac acc  gag act tgg 116407
Ala Pro  Ile Gln Arg Ile Tyr  Gly Val Arg Tyr Thr  Glu Thr Trp
    19705                19710                19715


agc ttt  ttg ccg tca tta acc  tgt acg gga gac gca  gcg ccc gcc 116452
Ser Phe  Leu Pro Ser Leu Thr  Cys Thr Gly Asp Ala  Ala Pro Ala
    19720                19725                19730


atc cag  cat ata tgt tta aaa  cat aca aca tgc ttt  caa gac gtg 116497
Ile Gln  His Ile Cys Leu Lys  His Thr Thr Cys Phe  Gln Asp Val
    19735                19740                19745


gtg gtg  gat gtg gat tgc gcg  gaa aat act aaa gag  gat cag ttg 116542
Val Val  Asp Val Asp Cys Ala  Glu Asn Thr Lys Glu  Asp Gln Leu
    19750                19755                19760


gcc gaa  atc agt tac cgt ttt  caa ggt aag aag gaa  gcg gac caa 116587
Ala Glu  Ile Ser Tyr Arg Phe  Gln Gly Lys Lys Glu  Ala Asp Gln
    19765                19770                19775


ccg tgg  att gtt gta aac acg  agc aca ctg ttt gat  gaa ctc gaa 116632
Pro Trp  Ile Val Val Asn Thr  Ser Thr Leu Phe Asp  Glu Leu Glu
    19780                19785                19790


tta gac  ccc ccc gag att gaa  ccg ggt gtc ttg aaa  gta ctt cgg 116677
Leu Asp  Pro Pro Glu Ile Glu  Pro Gly Val Leu Lys  Val Leu Arg
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149

```
aca gaa  aaa caa tac ttg ggt  gtg tac att tgg aac  atg cgc ggc 116722
Thr Glu  Lys Gln Tyr Leu Gly  Val Tyr Ile Trp Asn  Met Arg Gly
    19810                19815                19820

tcc gat  ggt acg tct acc tac  gcc acg ttt ttg gtc  acc tgg aaa 116767
Ser Asp  Gly Thr Ser Thr Tyr  Ala Thr Phe Leu Val  Thr Trp Lys
    19825                19830                19835

ggg gat  gaa aaa aca aga aac  cct acg ccc gca gta  act cct caa 116812
Gly Asp  Glu Lys Thr Arg Asn  Pro Thr Pro Ala Val  Thr Pro Gln
    19840                19845                19850

cca aga  ggg gct gag ttt cat  atg tgg aat tac cac  tcg cat gta 116857
Pro Arg  Gly Ala Glu Phe His  Met Trp Asn Tyr His  Ser His Val
    19855                19860                19865

ttt tca  gtt ggt gat acg ttt  agc ttg gca atg cat  ctt cag tat 116902
Phe Ser  Val Gly Asp Thr Phe  Ser Leu Ala Met His  Leu Gln Tyr
    19870                19875                19880

aag ata  cat gaa gcg cca ttt  gat ttg ctg tta gag  tgg ttg tat 116947
Lys Ile  His Glu Ala Pro Phe  Asp Leu Leu Leu Glu  Trp Leu Tyr
    19885                19890                19895

gtc ccc  atc gat cct aca tgt  caa cca atg cgg tta  tat tct acg 116992
Val Pro  Ile Asp Pro Thr Cys  Gln Pro Met Arg Leu  Tyr Ser Thr
    19900                19905                19910

tgt ttg  tat cat ccc aac gca  ccc caa tgc ctc tct  cat atg aat 117037
Cys Leu  Tyr His Pro Asn Ala  Pro Gln Cys Leu Ser  His Met Asn
    19915                19920                19925

tcc ggt  tgt aca ttt acc tcg  cca cat tta gcc cag  cgt gtt gca 117082
Ser Gly  Cys Thr Phe Thr Ser  Pro His Leu Ala Gln  Arg Val Ala
    19930                19935                19940

agc aca  gtg tat caa aat tgt  gaa cat gca gat aac  tac acc gca 117127
Ser Thr  Val Tyr Gln Asn Cys  Glu His Ala Asp Asn  Tyr Thr Ala
    19945                19950                19955

tat tgt  ctg gga ata tct cat  atg gag cct agc ttt  ggt cta atc 117172
Tyr Cys  Leu Gly Ile Ser His  Met Glu Pro Ser Phe  Gly Leu Ile
    19960                19965                19970

tta cac  gac ggg ggc acc acg  tta aag ttt gta gat  aca ccc gag 117217
Leu His  Asp Gly Gly Thr Thr  Leu Lys Phe Val Asp  Thr Pro Glu
    19975                19980                19985

agt ttg  tcg gga tta tac gtt  ttt gtg gtg tat ttt  aac ggg cat 117262
Ser Leu  Ser Gly Leu Tyr Val  Phe Val Val Tyr Phe  Asn Gly His
    19990                19995                20000

gtt gaa  gcc gta gca tac act  gtt gta tcc aca gta  gat cat ttt 117307
Val Glu  Ala Val Ala Tyr Thr  Val Val Ser Thr Val  Asp His Phe
    20005                20010                20015
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150

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gta aac   gca att gaa gag cgt   gga ttt ccg cca acg   gcc ggt cag 117352
Val Asn   Ala Ile Glu Glu Arg   Gly Phe Pro Pro Thr   Ala Gly Gln
    20020                 20025                 20030

cca ccg   gcg act act aaa ccc   aag gaa att acc ccc   gta aac ccc 117397
Pro Pro   Ala Thr Thr Lys Pro   Lys Glu Ile Thr Pro   Val Asn Pro
    20035                 20040                 20045

gga acg   tca cca ctt cta cga   tat gcc gca tgg acc   gga ggg ctt 117442
Gly Thr   Ser Pro Leu Leu Arg   Tyr Ala Ala Trp Thr   Gly Gly Leu
    20050                 20055                 20060

gca gca   gta gta ctt tta tgt   ctc gta ata ttt tta   atc tgt acg 117487
Ala Ala   Val Val Leu Leu Cys   Leu Val Ile Phe Leu   Ile Cys Thr
    20065                 20070                 20075

gct aaa   cga atg agg gtt aaa   gcc tat agg gta gac   aag tcc ccg 117532
Ala Lys   Arg Met Arg Val Lys   Ala Tyr Arg Val Asp   Lys Ser Pro
    20080                 20085                 20090

tat aac   caa agc atg tat tac   gct ggc ctt cca gtg   gac gat ttc 117577
Tyr Asn   Gln Ser Met Tyr Tyr   Ala Gly Leu Pro Val   Asp Asp Phe
    20095                 20100                 20105

gag gac   tcg gaa tct acg gat   acg gaa gaa gag ttt   ggt aac gcg 117622
Glu Asp   Ser Glu Ser Thr Asp   Thr Glu Glu Glu Phe   Gly Asn Ala
    20110                 20115                 20120

att gga   ggg agt cac ggg ggt   tcg agt tac acg gtg   tat ata gat 117667
Ile Gly   Gly Ser His Gly Gly   Ser Ser Tyr Thr Val   Tyr Ile Asp
    20125                 20130                 20135

aag acc   cgg tga tcaccgaacc ggggcaacgc cgagcgtgta aatttaaata      117719
Lys Thr   Arg
    20140

aaaaacagta cgctttttatc cggtgtatgt tttaaattta tttttttttt ctatataaag 117779

ggatggggtg tcaggatctc tcgtaggttc ttgggactcc aagggacccg cagcccaggt 117839

acgcgtcaaa aagcctgtga caaattcccc cggggcggtc ataataattcg gcgcggatgc 117899

atttattatc gggcgacaat ccaatagtcg gaagtccggc gtgtcccaaa cagcaccaat 117959

atgccatcaa tatcagccgc tcgctgagct ccagatgcga ttgtggatcc ggcatgcatt 118019

gctcgcgtaa taacgataac accgctctgc ggatcggcgg aaccgagggt ggacgttgtc 118079

tatccgctgc gagctccccg cacatccgtc cgaaggcgtc ctttgccctc ccccacaaac 118139

tcgcgcacgg tctctcggag gggctgtgta taaaagcctc gtaggcctcg gtagatatgg 118199

cgcatagcgc ggcggcgaag taccgttcgg cgtcgttcat gagagcctgg tgcgcggggg 118259

tatcgtgtcg tgtgcagtaa agtccggcat attcaccgcc cgggtgctca ccgcgggatc 118319
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151

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cgcagagatt cataccacac ggcccgtgtg gggaccccgt gggttaatgg agacgttcaa 118379

accagcaccc tctaccctct aatatccaca acaccccact cccccacaga cagacatcaa 118439

aaaaagacac gagccaaacc attgtattta tttataaaga ctacacgcca tgggggggcg 118499

gtatatcatg ccggcgcggg gcttcgtgtc gacgtcgctt ccaatctaca ccccctcgc 118559

ccaacgcggt gagcgctttc gcggctgtat attccgcggt ttctgcaccc gcgtatcgct 118619

cgatggcacg ctggggtctc tttggggacg gggtgttgca cccatccccg tctcgataac 118679

aatcgccggg taccccgtct ggttcacaag aatcggtgct ctcctctgat tcttcttcca 118739

ctataaagtc ttccccgtcc gatgattccg cgtcggaatc ccgaaattca attacatccg 118799

atggcgtaga cccatcatcg tcgctatcgt cttcaccacc atcatcagat acgtcacatt 118859

ccagtgcgct cctatgcaaa ggaacattcg gcgcctcaat gaacccgtct tccccccgag 118919

ggggtcgatg ggacacttcc attaaagtag cgcgtaagca ctgcgtctgg gtgggttgaa 118979

gctgtaacaa ttcctcccag cacgctaacg tgggacgctg tctggtgcga cccattagat 119039

aaaagtcgag gcatatgcgc cgcaatcttc gtgaatctcg cgtgacgcgt cccgacgact 119099

gtgcaataca taaaaaaaca cggttgatgt cctcaacgag cctggccggg tggatctccc 119159

aacccggagt acaaaacgcg ccggggcccc gcgacgtatc ccggccgttc aggggtcctg 119219

gtgcagatcc atattccatc tttccgttaa catcaaccga tgccccgggt tttgactcgg 119279

acgagtcgcc ccgcgtagcc ggtgaggtgc aaaacatgtc cttggggccg tagtaacctt 119339

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taaattttt tgtgattttc tacaacggtt tagagaatta tggttataaa catcggcggg 119999

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                                                      Met Asp Thr
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ccg     ccg atg cag cgc tct  aca ccc caa cgc gcg     ggg tcg cct gat 120817
Pro     Pro Met Gln Arg Ser  Thr Pro Gln Arg Ala     Gly Ser Pro Asp
20145                   20150                20155

act     ttg gag tta atg gac  ctg ttg gac gcg gcc     gcg gcg gcc gcc 120862
Thr     Leu Glu Leu Met Asp  Leu Leu Asp Ala Ala     Ala Ala Ala Ala
20160                   20165                20170

gaa     cac agg gcc cgg gtg  gtc acc tcg agt cag     cct gac gat cta 120907
Glu     His Arg Ala Arg Val  Val Thr Ser Ser Gln     Pro Asp Asp Leu
20175                   20180                20185

cta     ttt gga gag aac ggg  gtc atg gtg gga cgg     gaa cac gag atc 120952
Leu     Phe Gly Glu Asn Gly  Val Met Val Gly Arg     Glu His Glu Ile
20190                   20195                20200

gtt     tca att ccc tcc gta  tcg gga ctt caa cca     gaa ccc aga acg 120997
Val     Ser Ile Pro Ser Val  Ser Gly Leu Gln Pro     Glu Pro Arg Thr
20205                   20210                20215

gaa     gat gtt ggc gaa gag  cta aca caa gac gac     tac gta tgc gag 121042
Glu     Asp Val Gly Glu Glu  Leu Thr Gln Asp Asp     Tyr Val Cys Glu
20220                   20225                20230

gac     ggt cag gat cta atg  ggc tcg cct gta atc     ccg ctg gcc gag 121087
Asp     Gly Gln Asp Leu Met  Gly Ser Pro Val Ile     Pro Leu Ala Glu
20235                   20240                20245

gtc     ttc cac acc cga ttc  tcg gag gcc ggc gcg     cga gaa cca aca 121132
Val     Phe His Thr Arg Phe  Ser Glu Ala Gly Ala     Arg Glu Pro Thr
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gga   gcc gat cgc tcc ctt   gag aca gtc tct ctc   gga acg aag ctt 121177
Gly   Ala Asp Arg Ser Leu   Glu Thr Val Ser Leu   Gly Thr Lys Leu
20265   20270   20275

gct   agg tct cca aaa cca   ccg atg aac gat ggg   gaa acg ggc aga 121222
Ala   Arg Ser Pro Lys Pro   Pro Met Asn Asp Gly   Glu Thr Gly Arg
20280   20285   20290

ggt   acg acc cct ccg ttc   ccg cag gcc ttc tcc   cct gta tcc ccc 121267
Gly   Thr Thr Pro Pro Phe   Pro Gln Ala Phe Ser   Pro Val Ser Pro
20295   20300   20305

gcg   tct cct gtt gga gac   gcc gcc ggg aac gat   caa cgg gaa gac 121312
Ala   Ser Pro Val Gly Asp   Ala Ala Gly Asn Asp   Gln Arg Glu Asp
20310   20315   20320

cag   cgg tct ata ccc cga   caa acg acg aga gga   aat tca cca ggt 121357
Gln   Arg Ser Ile Pro Arg   Gln Thr Thr Arg Gly   Asn Ser Pro Gly
20325   20330   20335

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Leu   Pro Ser Val Val His   Arg Asp Arg Gln Thr   Gln Ser Ile Ser
20340   20345   20350

ggt   aaa aag ccg ggc gat   gag caa gcg ggt cat   gcg cat gca tcg 121447
Gly   Lys Lys Pro Gly Asp   Glu Gln Ala Gly His   Ala His Ala Ser
20355   20360   20365

ggg   gac gga gta gtt ctc   cag aaa act caa cgg   ccc gct cag gga 121492
Gly   Asp Gly Val Val Leu   Gln Lys Thr Gln Arg   Pro Ala Gln Gly
20370   20375   20380

aag   agc ccg aag aaa aag   act ttg aag gtt aag   gtc cca ctc ccg 121537
Lys   Ser Pro Lys Lys Lys   Thr Leu Lys Val Lys   Val Pro Leu Pro
20385   20390   20395

gcg   cgg aaa ccc ggt gga   cct gta ccc ggc ccg   gtt gag caa ttg 121582
Ala   Arg Lys Pro Gly Gly   Pro Val Pro Gly Pro   Val Glu Gln Leu
20400   20405   20410

tac   cac gtc ctt tcg gac   agc gtt ccc gct aag   ggg gca aag gcg 121627
Tyr   His Val Leu Ser Asp   Ser Val Pro Ala Lys   Gly Ala Lys Ala
20415   20420   20425

gac   ctg ccg ttt gag acc   gat gat acc cgc cca   agg aaa cat gat 121672
Asp   Leu Pro Phe Glu Thr   Asp Asp Thr Arg Pro   Arg Lys His Asp
20430   20435   20440

gcc   cgg ggt ata aca cct   cgc gtc cct gga cgt   tcg tcg ggg ggc 121717
Ala   Arg Gly Ile Thr Pro   Arg Val Pro Gly Arg   Ser Ser Gly Gly
20445   20450   20455

aaa   cct aga gcg ttt ttg   gcc ctg ccg gga aga   tcc cac gca cca 121762
Lys   Pro Arg Ala Phe Leu   Ala Leu Pro Gly Arg   Ser His Ala Pro
20460   20465   20470

gac   ccg att gag gat gac   agc cca gtg gag aaa   aag cca aag agt 121807
Asp   Pro Ile Glu Asp Asp   Ser Pro Val Glu Lys   Lys Pro Lys Ser
20475   20480   20485

cgt   gag ttt gtt tcg tct   tca tcc tct tcc tcg   tcg tgg gga tcg 121852
Arg   Glu Phe Val Ser Ser   Ser Ser Ser Ser Ser   Ser Trp Gly Ser
20490   20495   20500

tca   tcg gag gat gaa gac   gat gaa ccc cgg cgc   gtt tcg gtg gga 121897
Ser   Ser Glu Asp Glu Asp   Asp Glu Pro Arg Arg   Val Ser Val Gly
20505   20510   20515

agt   gaa act aca ggc agc   agg tcc gga cgc gaa   cac gcc cct tcc 121942
Ser   Glu Thr Thr Gly Ser   Arg Ser Gly Arg Glu   His Ala Pro Ser
20520   20525   20530

ccg   tca aat tcg gat gat   tcg gac tca aat gat   ggt ggg tcg acg 121987
Pro   Ser Asn Ser Asp Asp   Ser Asp Ser Asn Asp   Gly Gly Ser Thr
20535   20540   20545

aaa   caa aat atc caa ccg   gga tat cga tcc atc   agc ggt ccc gat 122032
Lys   Gln Asn Ile Gln Pro   Gly Tyr Arg Ser Ile   Ser Gly Pro Asp
20550   20555   20560

ccg   agg att cgt aag acc   aaa cgt ctt gcg ggg   gaa ccg ggg cgc 122077
Pro   Arg Ile Arg Lys Thr   Lys Arg Leu Ala Gly   Glu Pro Gly Arg
20565   20570   20575

cag   aga cag aaa tca ttt   tcc ctg ccg cga tcc   aga acc ccg ata 122122
Gln   Arg Gln Lys Ser Phe   Ser Leu Pro Arg Ser   Arg Thr Pro Ile
20580   20585   20590

att   ccc ccg gtg tcg ggg   ccg ctc atg atg ccc   gac gga agc cct 122167
Ile   Pro Pro Val Ser Gly   Pro Leu Met Met Pro   Asp Gly Ser Pro
20595   20600   20605

tgg   ccc gga tcg gca ccc   ctc cca tcc aac agg   gtg cgg ttt gga 122212
Trp   Pro Gly Ser Ala Pro   Leu Pro Ser Asn Arg   Val Arg Phe Gly
20610   20615   20620

ccg   tcc ggg gag acc aga   gag ggt cac tgg gag   gat gag gct gtg 122257
Pro   Ser Gly Glu Thr Arg   Glu Gly His Trp Glu   Asp Glu Ala Val
20625   20630   20635

aga   gcg gcg cgg gct cgt   tac gag gcc tca acg   gaa ccc gtg ccg 122302
Arg   Ala Ala Arg Ala Arg   Tyr Glu Ala Ser Thr   Glu Pro Val Pro
20640   20645   20650

ctt   tac gtg ccg gag ttg   gga gat ccg gct aga   cag tac cgc gcg 122347
Leu   Tyr Val Pro Glu Leu   Gly Asp Pro Ala Arg   Gln Tyr Arg Ala
20655   20660   20665

ctg   att aac ctg atc tac   tgt cca gac aga gac   cct ata gca tgg 122392
Leu   Ile Asn Leu Ile Tyr   Cys Pro Asp Arg Asp   Pro Ile Ala Trp
20670   20675   20680

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ctc     cag aac ccc aag ctg     acc ggt gtc aac tcg     gcc ctg aac cag 122437
Leu     Gln Asn Pro Lys Leu     Thr Gly Val Asn Ser     Ala Leu Asn Gln
20685                   20690                   20695

ttc     tac caa aag ctg ttg     cca ccg gga cgg gcg     ggt acc gcc gtt 122482
Phe     Tyr Gln Lys Leu Leu     Pro Pro Gly Arg Ala     Gly Thr Ala Val
20700                   20705                   20710

acg     ggg agc gta gcg tct     ccc gtt ccg cat gta     ggc gaa gcc atg 122527
Thr     Gly Ser Val Ala Ser     Pro Val Pro His Val     Gly Glu Ala Met
20715                   20720                   20725

gcc     acg ggg gag gcc ctc     tgg gct ctc ccc cac     gcg gcc gcg gcc 122572
Ala     Thr Gly Glu Ala Leu     Trp Ala Leu Pro His     Ala Ala Ala Ala
20730                   20735                   20740

gtg     gct atg agc cgt cga     tac gac cgg gcc caa     aaa cac ttt atc 122617
Val     Ala Met Ser Arg Arg     Tyr Asp Arg Ala Gln     Lys His Phe Ile
20745                   20750                   20755

cta     cag agt ctc cgc aga     gcc ttt gcc agc atg     gca tac ccc gag 122662
Leu     Gln Ser Leu Arg Arg     Ala Phe Ala Ser Met     Ala Tyr Pro Glu
20760                   20765                   20770

gca     acg ggc tcc agt ccg     gcg gcg cgg atc tcc     cgc ggt cac cct 122707
Ala     Thr Gly Ser Ser Pro     Ala Ala Arg Ile Ser     Arg Gly His Pro
20775                   20780                   20785

tct     cca aca acc ccg gcc     aca cag gct ccc gac     cct cag ccg tcg 122752
Ser     Pro Thr Thr Pro Ala     Thr Gln Ala Pro Asp     Pro Gln Pro Ser
20790                   20795                   20800

gcc     gcc gca cgc tct ctt     tct gtg tgt cca ccg     gat gat cgt tta 122797
Ala     Ala Ala Arg Ser Leu     Ser Val Cys Pro Pro     Asp Asp Arg Leu
20805                   20810                   20815

cga     act ccg cgc aag cgc     aag tcc cag cca gtc     gag agc aga agc 122842
Arg     Thr Pro Arg Lys Arg     Lys Ser Gln Pro Val     Glu Ser Arg Ser
20820                   20825                   20830

ctc     ctc gac aag att agg     gag aca ccc gtc gcg     gac gcc cgg gtt 122887
Leu     Leu Asp Lys Ile Arg     Glu Thr Pro Val Ala     Asp Ala Arg Val
20835                   20840                   20845

gca     gac gat cat gtg gtt     tcc aag gcc aag agg     cgg gta tcc gag 122932
Ala     Asp Asp His Val Val     Ser Lys Ala Lys Arg     Arg Val Ser Glu
20850                   20855                   20860

ccc     gtg acc atc acc tcg     ggc cct gtg gtg gat     ccc ccc gcc gta 122977
Pro     Val Thr Ile Thr Ser     Gly Pro Val Val Asp     Pro Pro Ala Val
20865                   20870                   20875

ata     acg atg cca ctt gac     gga ccg gcc cca aac     ggg gga ttt cgg 123022
Ile     Thr Met Pro Leu Asp     Gly Pro Ala Pro Asn     Gly Gly Phe Arg
20880                   20885                   20890

cgt     att ccc cgg ggg gcc     ctg cat acc ccg gtc     ccg tcg gac cag 123067
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Arg    Ile Pro Arg Gly Ala    Leu His Thr Pro Val    Pro Ser Asp Gln
20895                20900                20905


gct    cgc aag gcg tac tgt    acc ccc gaa acc atc    gcc cgt ctg gtc 123112
Ala    Arg Lys Ala Tyr Cys    Thr Pro Glu Thr Ile    Ala Arg Leu Val
20910                20915                20920


gac    gac cca ttg ttt ccc    acg gcc tgg cgc cct    gcg cta agc ttt 123157
Asp    Asp Pro Leu Phe Pro    Thr Ala Trp Arg Pro    Ala Leu Ser Phe
20925                20930                20935


gat    ccc ggc gcc ttg gcg    gaa atc gcc gct cgg    cgt ccg ggc gga 123202
Asp    Pro Gly Ala Leu Ala    Glu Ile Ala Ala Arg    Arg Pro Gly Gly
20940                20945                20950


gga    gac cga cgg ttt ggt    cca ccc agc gga gtg    gag gcg ctg cga 123247
Gly    Asp Arg Arg Phe Gly    Pro Pro Ser Gly Val    Glu Ala Leu Arg
20955                20960                20965


cgg    agg tgc gcc tgg atg    cgg cag atc cca gac    ccg gag gat gtg 123292
Arg    Arg Cys Ala Trp Met    Arg Gln Ile Pro Asp    Pro Glu Asp Val
20970                20975                20980


agg    ctt ctg atc atc tac    gat ccg ttg ccc gga    gag gac atc aac 123337
Arg    Leu Leu Ile Ile Tyr    Asp Pro Leu Pro Gly    Glu Asp Ile Asn
20985                20990                20995


ggc    ccc ctc gag agc acc    ctc gcg aca gat ccg    gga ccg tca tgg 123382
Gly    Pro Leu Glu Ser Thr    Leu Ala Thr Asp Pro    Gly Pro Ser Trp
21000                21005                21010


agt    cca tcc cga ggg gga    ctg tct gtg gtc ctg    gca gcc ctg agt 123427
Ser    Pro Ser Arg Gly Gly    Leu Ser Val Val Leu    Ala Ala Leu Ser
21015                21020                21025


aac    cgg ttg tgc ctg ccg    agc act cat gcc tgg    gcc ggg aac tgg 123472
Asn    Arg Leu Cys Leu Pro    Ser Thr His Ala Trp    Ala Gly Asn Trp
21030                21035                21040


acc    ggc ccg ccg gac gtg    tcc gct ttg aac gcc    cgg ggc gtt tta 123517
Thr    Gly Pro Pro Asp Val    Ser Ala Leu Asn Ala    Arg Gly Val Leu
21045                21050                21055


tta    ctg tcg acc cga gac    ctg gcc ttt gcc ggg    gcc gtc gag tat 123562
Leu    Leu Ser Thr Arg Asp    Leu Ala Phe Ala Gly    Ala Val Glu Tyr
21060                21065                21070


cta    ggc tcg cgg ttg gcc    tct gcc cgg cgc cgg    ttg ctg gtg ttg 123607
Leu    Gly Ser Arg Leu Ala    Ser Ala Arg Arg Arg    Leu Leu Val Leu
21075                21080                21085


gac    gcg gtg gcc ctc gag    agg tgg ccc agg gat    gga ccc gct ttg 123652
Asp    Ala Val Ala Leu Glu    Arg Trp Pro Arg Asp    Gly Pro Ala Leu
21090                21095                21100


tct    cag tat cac gtg tac    gtc cgg gcc ccg gcg    cga ccg gac gcc 123697
Ser    Gln Tyr His Val Tyr    Val Arg Ala Pro Ala    Arg Pro Asp Ala
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cag   gcc gtc gtc cga tgg   cca gac tcg gcg gtc   aca gaa gga ctc 123742
Gln   Ala Val Val Arg Trp   Pro Asp Ser Ala Val   Thr Glu Gly Leu
21120   21125   21130

gcc   cgg gcc gtg ttt gca   tcg tcg cgc acc ttt   ggg cca gcg agt 123787
Ala   Arg Ala Val Phe Ala   Ser Ser Arg Thr Phe   Gly Pro Ala Ser
21135   21140   21145

ttt   gct cgt atc gag act   gcg ttt gcc aac ctg   tac ccg ggc gaa 123832
Phe   Ala Arg Ile Glu Thr   Ala Phe Ala Asn Leu   Tyr Pro Gly Glu
21150   21155   21160

caa   ccc ctg tgt ttg tgc   cgc ggt ggg aac gtc   gca tac acc gtg 123877
Gln   Pro Leu Cys Leu Cys   Arg Gly Gly Asn Val   Ala Tyr Thr Val
21165   21170   21175

tgt   acc cgc gcg ggc ccc   aag acc cgc gtc ccc   ctg tcg ccc cgt 123922
Cys   Thr Arg Ala Gly Pro   Lys Thr Arg Val Pro   Leu Ser Pro Arg
21180   21185   21190

gaa   tac cgg cag tac gtg   ctg ccg ggt ttt gac   ggt tgc aag gac 123967
Glu   Tyr Arg Gln Tyr Val   Leu Pro Gly Phe Asp   Gly Cys Lys Asp
21195   21200   21205

ctc   gcg cga cag tct cgg   ggt ctg ggg ctc ggg   gca gcc gac ttt 124012
Leu   Ala Arg Gln Ser Arg   Gly Leu Gly Leu Gly   Ala Ala Asp Phe
21210   21215   21220

gtg   gac gag gcg gca cat   agc cac cgc gca gca   aac cga tgg ggc 124057
Val   Asp Glu Ala Ala His   Ser His Arg Ala Ala   Asn Arg Trp Gly
21225   21230   21235

ctg   ggt gcc gcg ctt cga   ccc gtc ttc ctt ccc   gag gga cgg aga 124102
Leu   Gly Ala Ala Leu Arg   Pro Val Phe Leu Pro   Glu Gly Arg Arg
21240   21245   21250

ccg   ggg gcc gcc ggg ccg   gag gcc ggc gac gta   ccc acc tgg gcg 124147
Pro   Gly Ala Ala Gly Pro   Glu Ala Gly Asp Val   Pro Thr Trp Ala
21255   21260   21265

agg   gtg ttt tgc cgc cac   gcc ctg ctg gaa ccc   gac cct gcc gca 124192
Arg   Val Phe Cys Arg His   Ala Leu Leu Glu Pro   Asp Pro Ala Ala
21270   21275   21280

gaa   cca ctc gtg ctt cca   ccc gtg gcc ggt cgg   tcg gtg gcg ctg 124237
Glu   Pro Leu Val Leu Pro   Pro Val Ala Gly Arg   Ser Val Ala Leu
21285   21290   21295

tat   gcg tcg gcg gac gag   gct cgg aat gcc ctc   ccc ccg att ccc 124282
Tyr   Ala Ser Ala Asp Glu   Ala Arg Asn Ala Leu   Pro Pro Ile Pro
21300   21305   21310

aga   gta atg tgg ccg ccc   ggt ttt ggg gcc gcg   gag acg gtg ttg 124327
Arg   Val Met Trp Pro Pro   Gly Phe Gly Ala Ala   Glu Thr Val Leu
21315   21320   21325

158

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gag    ggg agc gac gga aca    cgg ttc gtg ttc gga    cac cac ggg ggc 124372
Glu    Gly Ser Asp Gly Thr    Arg Phe Val Phe Gly    His His Gly Gly
21330                  21335                  21340

tcg    gaa cgg ccg tca gaa    acc cag gcg ggg cga    cag cgg cgc acc 124417
Ser    Glu Arg Pro Ser Glu    Thr Gln Ala Gly Arg    Gln Arg Arg Thr
21345                  21350                  21355

gca    gac gac aga gaa cac    gct ttg gag ctg gac    gat tgg gag gtg 124462
Ala    Asp Asp Arg Glu His    Ala Leu Glu Leu Asp    Asp Trp Glu Val
21360                  21365                  21370

ggg    tgt gaa gac gcg tgg    gac agc gag gag ggg    ggc ggg gac gac 124507
Gly    Cys Glu Asp Ala Trp    Asp Ser Glu Glu Gly    Gly Gly Asp Asp
21375                  21380                  21385

ggg    gac gca ccg ggg tca    tcc ttt ggg gtg agc    atc gtg tcg gtg 124552
Gly    Asp Ala Pro Gly Ser    Ser Phe Gly Val Ser    Ile Val Ser Val
21390                  21395                  21400

gcc    ccg ggt gtg ctg cga    gac cgc cgg gtg ggt    ttg cgc ccg gcg 124597
Ala    Pro Gly Val Leu Arg    Asp Arg Arg Val Gly    Leu Arg Pro Ala
21405                  21410                  21415

gtc    aag gtg gag ctg ttg    tcc tcg tcc tcg tcc    tcc gag gac gag 124642
Val    Lys Val Glu Leu Leu    Ser Ser Ser Ser Ser    Ser Glu Asp Glu
21420                  21425                  21430

gac    gat gtg tgg gga ggg    cgc ggg ggg agg agc    ccc ccg cag agt 124687
Asp    Asp Val Trp Gly Gly    Arg Gly Gly Arg Ser    Pro Pro Gln Ser
21435                  21440                  21445

cgg    ggg tga cggagtcccc tcctttctc gtgagcgcca ctggcgcgcg         124736
Arg    Gly
21450

gactgtttgt tgttaataaa agcggaacgg tttttatgaa aaaagtgtct gtctgtctgt 124796

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<213>  Varicella zoster

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1               5                  10                  15


Ile Met Gly Ser Thr Leu Val Arg Pro Ser Leu Asn Ala Thr Ala Glu
            20                  25                  30
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159

Glu Asn Pro Ala Ser Glu Thr Arg Cys Leu Leu Arg Val Leu Ala Gly
    35   40   45

Arg Thr Val Asp Leu Pro Gly Gly Gly Thr Leu His Ile Thr Cys Thr
    50   55   60

Lys Thr Tyr Val Ile Ile Gly Lys Tyr Ser Lys Pro Gly Glu Arg Leu
65   70   75   80

Ser Leu Ala Arg Leu Ile Gly Arg Ala Met Thr Pro Gly Gly Ala Arg
          85   90   95

Thr Phe Ile Ile Leu Ala Met Lys Glu Lys Arg Ser Thr Thr Leu Gly
        100   105   110

Tyr Glu Cys Gly Thr Gly Leu His Leu Leu Ala Pro Ser Met Gly Thr
      115   120   125

Phe Leu Arg Thr His Gly Leu Ser Asn Arg Asp Leu Cys Leu Trp Arg
    130   135   140

Gly Asn Ile Tyr Asp Met His Met Gln Arg Leu Met Phe Trp Glu Asn
145   150   155   160

Ile Ala Gln Asn Thr Thr Glu Thr Pro Cys Ile Thr Ser Thr Leu Thr
          165   170   175

Cys Asn Leu Thr Glu Asp Ser Gly Glu Ala Ala Leu Thr Thr Ser Asp
      180   185   190

Arg Pro Thr Leu Pro Thr Leu Thr Ala Gln Gly Arg Pro Thr Val Ser
      195   200   205

Asn Ile Arg Gly Ile Leu Lys Gly Ser Pro Arg Gln Gln Pro Val Cys
    210   215   220

His Arg Val Arg Phe Ala Glu Pro Thr Glu Gly Val Leu Met
225   230   235

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160

<213> Varicella zoster

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1   5   10   15

Glu Glu Pro Ser Tyr Glu Glu Val Arg Val Asn Thr His Pro Gln Gly
                20   25   30

Ala Ala Leu Leu Arg Leu Gln Glu Ala Leu Thr Ala Val Asn Gly Leu
        35   40   45

Leu Pro Ala Pro Leu Thr Leu Glu Asp Val Val Ala Ser Ala Asp Asn
        50   55   60

Thr Arg Arg Leu Val Arg Ala Gln Ala Leu Ala Arg Thr Tyr Ala Ala
65   70   75   80

Cys Ser Arg Asn Ile Glu Cys Leu Lys Gln His His Phe Thr Glu Asp
                85   90   95

Asn Pro Gly Leu Asn Ala Val Val Arg Ser His Met Glu Asn Ser Lys
                100   105   110

Arg Leu Ala Asp Met Cys Leu Ala Ala Ile Thr His Leu Tyr Leu Ser
        115   120   125

Val Gly Ala Val Asp Val Thr Thr Asp Asp Ile Val Asp Gln Thr Leu
        130   135   140

Arg Met Thr Ala Glu Ser Glu Val Val Met Ser Asp Val Val Leu Leu
145   150   155   160

Glu Lys Thr Leu Gly Val Val Ala Lys Pro Gln Ala Ser Phe Asp Val
                165   170   175

Ser His Asn His Glu Leu Ser Ile Ala Lys Gly Glu Asn Val Gly Leu
                180   185   190

Lys Thr Ser Pro Ile Lys Ser Glu Ala Thr Gln Leu Ser Glu Ile Lys
        195   200   205

Pro Pro Leu Ile Glu Val Ser Asp Asn Asn Thr Ser Asn Leu Thr Lys

161

Lys Thr Tyr Pro Thr Glu Thr Leu Gln Pro Val Leu Thr Pro Lys Gln
225   230   235   240

Thr Gln Asp Val Gln Arg Thr Thr Pro Ala Ile Lys Lys Ser His Val
                245   250   255

Met Leu Val

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Met Gly Ser Ile Thr Ala Ser Phe Ile Leu Ile Thr Met Gln Ile Leu
1   5   10   15

Phe Phe Cys Glu Asp Ser Ser Gly Glu Pro Asn Phe Ala Glu Arg Asn
                20   25   30

Phe Trp His Ala Ser Cys Ser Ala Arg Gly Val Tyr Ile Asp Gly Ser
            35   40   45

Met Ile Thr Thr Leu Phe Phe Tyr Ala Ser Leu Leu Gly Val Cys Val
        50   55   60

Ala Leu Ile Ser Leu Ala Tyr His Ala Cys Phe Arg Leu Phe Thr Arg
65   70   75   80

Ser Val Leu Arg Ser Thr Trp
                85

<210>   12
<211>   302
<212>   PRT
<213>   Varicella zoster

<400>   12

Met Ala Ser Ser Asp Gly Asp Arg Leu Cys Arg Ser Asn Ala Val Arg
1   5   10   15

162

Arg Lys Thr Thr Pro Ser Tyr Ser Gly Gln Tyr Arg Thr Ala Arg Arg
        20   25   30

Ser Val Val Val Gly Pro Pro Asp Asp Ser Asp Asp Ser Leu Gly Tyr
        35   40   45

Ile Thr Thr Val Gly Ala Asp Ser Pro Ser Pro Val Tyr Ala Asp Leu
        50   55   60

Tyr Phe Glu His Lys Asn Thr Thr Pro Arg Val His Gln Pro Asn Asp
65   70   75   80

Ser Ser Gly Ser Glu Asp Asp Phe Glu Asp Ile Asp Glu Val Val Ala
                85   90   95

Ala Phe Arg Glu Ala Arg Leu Arg His Glu Leu Val Glu Asp Ala Val
            100   105   110

Tyr Glu Asn Pro Leu Ser Val Glu Lys Pro Ser Arg Ser Phe Thr Lys
            115   120   125

Asn Ala Ala Val Lys Pro Lys Leu Glu Asp Ser Pro Lys Arg Ala Pro
        130   135   140

Pro Gly Ala Gly Ala Ile Ala Ser Gly Arg Pro Ile Ser Phe Ser Thr
145   150   155   160

Ala Pro Lys Thr Ala Thr Ser Ser Trp Cys Gly Pro Thr Pro Ser Tyr
                165   170   175

Asn Lys Arg Val Phe Cys Glu Ala Val Arg Arg Val Ala Ala Met Gln
            180   185   190

Ala Gln Lys Ala Ala Glu Ala Ala Trp Asn Ser Asn Pro Pro Arg Asn
            195   200   205

Asn Ala Glu Leu Asp Arg Leu Leu Thr Gly Ala Val Ile Arg Ile Thr
        210   215   220

Val His Glu Gly Leu Asn Leu Ile Gln Ala Ala Asn Glu Ala Asp Leu
225   230   235   240

Gly Glu Gly Ala Ser Val Ser Lys Arg Gly His Asn Arg Lys Thr Gly

163

Asp Leu Gln Gly Gly Met Gly Asn Glu Pro Met Tyr Ala Gln Val Arg
        260   265   270

Lys Pro Lys Ser Arg Thr Asp Thr Gln Thr Thr Gly Arg Ile Thr Asn
        275   280   285

Arg Ser Arg Ala Arg Ser Ala Ser Arg Thr Asp Thr Arg Lys
    290   295   300

<210> 13
<211> 410
<212> PRT
<213> Varicella zoster

<400> 13

Met Glu Cys Asn Leu Gly Thr Glu His Pro Ser Thr Asp Thr Trp Asn
1   5   10   15

Arg Ser Lys Thr Glu Gln Ala Val Val Asp Ala Phe Asp Glu Ser Leu
        20   25   30

Phe Gly Asp Val Ala Ser Asp Ile Gly Phe Glu Thr Ser Leu Tyr Ser
        35   40   45

His Ala Val Lys Thr Ala Pro Ser Pro Pro Trp Val Ala Ser Pro Lys
    50   55   60

Ile Leu Tyr Gln Gln Leu Ile Arg Asp Leu Asp Phe Ser Glu Gly Pro
65   70   75   80

Arg Leu Leu Ser Cys Leu Glu Thr Trp Asn Glu Asp Leu Phe Ser Cys
                85   90   95

Phe Pro Ile Asn Glu Asp Leu Tyr Ser Asp Met Met Val Leu Ser Pro
            100   105   110

Asp Pro Asp Asp Val Ile Ser Thr Val Ser Thr Lys Asp His Val Glu
        115   120   125

Met Phe Asn Leu Thr Thr Arg Gly Ser Val Arg Leu Pro Ser Pro Pro
    130   135   140

164

Lys Gln Pro Thr Gly Leu Pro Ala Tyr Val Gln Glu Val Gln Asp Ser
145   150   155   160

Phe Thr Val Glu Leu Arg Ala Arg Glu Glu Ala Tyr Thr Lys Leu Leu
                    165   170   175

Val Thr Tyr Cys Lys Ser Ile Ile Arg Tyr Leu Gln Gly Thr Ala Lys
                180   185   190

Arg Thr Thr Ile Gly Leu Asn Ile Gln Asn Pro Asp Gln Lys Ala Tyr
            195   200   205

Thr Gln Leu Arg Gln Ser Ile Leu Leu Arg Tyr Tyr Arg Glu Val Ala
        210   215   220

Ser Leu Ala Arg Leu Leu Tyr Leu His Leu Tyr Leu Thr Val Thr Arg
225   230   235   240

Glu Phe Ser Trp Arg Leu Tyr Ala Ser Gln Ser Ala His Pro Asp Val
                245   250   255

Phe Ala Ala Leu Lys Phe Thr Trp Thr Glu Arg Arg Gln Phe Thr Cys
                260   265   270

Ala Phe His Pro Val Leu Cys Asn His Gly Ile Val Leu Leu Glu Gly
            275   280   285

Lys Pro Leu Thr Ala Ser Ala Leu Arg Glu Ile Asn Tyr Arg Arg Arg
        290   295   300

Glu Leu Gly Leu Pro Leu Val Arg Cys Gly Leu Val Glu Glu Asn Lys
305   310   315   320

Ser Pro Leu Val Gln Gln Pro Ser Phe Ser Val His Leu Pro Arg Ser
                325   330   335

Val Gly Phe Leu Thr His His Ile Lys Arg Lys Leu Asp Ala Tyr Ala
                340   345   350

Val Lys His Pro Gln Glu Pro Arg His Val Arg Ala Asp His Pro Tyr
            355   360   365

165

```
Ala Lys Val Val Glu Asn Arg Asn Tyr Gly Ser Ser Ile Glu Ala Met
    370             375             380

Ile Leu Ala Pro Pro Ser Pro Ser Glu Ile Leu Pro Gly Asp Pro Pro
385             390             395             400

Arg Pro Pro Thr Cys Gly Phe Leu Thr Arg
                405             410


<210>  14
<211>  819
<212>  PRT
<213>  Varicella zoster

<400>  14

Met Gln Ser Gly His Tyr Asn Arg Arg Gln Ser Arg Arg Gln Arg Ile
1               5               10              15


Ser Ser Asn Thr Thr Asp Ser Pro Arg His Thr His Gly Thr Arg Tyr
            20              25              30


Arg Ser Thr Asn Trp Tyr Thr His Pro Pro Gln Ile Leu Ser Asn Ser
            35              40              45


Glu Thr Leu Val Ala Val Gln Glu Leu Leu Asn Ser Glu Met Asp Gln
    50              55              60


Asp Ser Ser Ser Asp Ala Ser Asp Asp Phe Pro Gly Tyr Ala Leu His
65              70              75              80


His Ser Thr Tyr Asn Gly Ser Glu Gln Asn Thr Ser Thr Ser Arg His
            85              90              95


Glu Asn Arg Ile Phe Lys Leu Thr Glu Arg Glu Ala Asn Glu Glu Ile
            100             105             110


Asn Ile Asn Thr Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
            115             120             125


Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
    130             135             140


Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
145             150             155             160
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166

```
Glu Ala Glu Glu Asp Ala Ile Asp Asp Glu Gly Glu Ala Glu Glu Gly
                165                 170                 175

Glu Ala Glu Glu Gly Glu Ala Glu Glu Gly Glu Ala Glu Glu Asp Ala
                180                 185                 190

Ile Asp Asp Glu Gly Glu Ala Glu Glu Asp Ala Ala Glu Glu Asp Ala
            195                 200                 205

Ile Asp Asp Glu Gly Glu Ala Glu Glu Asp Tyr Phe Ser Val Ser Gln
        210                 215                 220

Val Cys Ser Arg Asp Ala Asp Glu Val Tyr Phe Thr Leu Asp Pro Glu
225                 230                 235                 240

Ile Ser Tyr Ser Thr Asp Leu Arg Ile Ala Lys Val Met Glu Pro Ala
                245                 250                 255

Val Ser Lys Glu Leu Asn Val Ser Lys Arg Cys Val Glu Pro Val Thr
            260                 265                 270

Leu Thr Gly Ser Met Leu Ala His Asn Gly Phe Asp Glu Ser Trp Phe
        275                 280                 285

Ala Met Arg Glu Cys Thr Arg Arg Glu Tyr Ile Thr Val Gln Gly Leu
        290                 295                 300

Tyr Asp Pro Ile His Leu Arg Tyr Gln Phe Asp Thr Ser Arg Met Thr
305                 310                 315                 320

Pro Pro Gln Ile Leu Arg Thr Ile Pro Ala Leu Pro Asn Met Thr Leu
                325                 330                 335

Gly Glu Leu Leu Leu Ile Phe Pro Ile Glu Phe Met Ala Gln Pro Ile
            340                 345                 350

Ser Ile Glu Arg Ile Leu Val Glu Asp Val Phe Leu Asp Arg Arg Ala
        355                 360                 365

Ser Ser Lys Thr His Lys Tyr Gly Pro Arg Trp Asn Ser Val Tyr Ala
    370                 375                 380
```

167

Leu Pro Tyr Asn Ala Gly Lys Met Tyr Val Gln His Ile Pro Gly Phe
385   390   395   400

Tyr Asp Val Ser Leu Arg Ala Val Gly Gln Gly Thr Ala Ile Trp His
                405   410   415

His Met Ile Leu Ser Thr Ala Ala Cys Ala Ile Ser Asn Arg Ile Ser
                420   425   430

His Gly Asp Gly Leu Gly Phe Leu Leu Asp Ala Ala Ile Arg Ile Ser
            435   440   445

Ala Asn Cys Ile Phe Leu Gly Arg Asn Asp Asn Phe Gly Val Gly Asp
        450   455   460

Pro Cys Trp Leu Glu Asp His Leu Ala Gly Leu Pro Arg Glu Ala Val
465   470   475   480

Pro Asp Val Leu Gln Val Thr Gln Leu Val Leu Pro Asn Arg Gly Pro
                485   490   495

Thr Val Ala Ile Met Arg Gly Phe Phe Gly Ala Leu Ala Tyr Trp Pro
            500   505   510

Glu Leu Arg Ile Ala Ile Ser Glu Pro Ser Thr Ser Leu Val Arg Tyr
        515   520   525

Ala Thr Gly His Met Glu Leu Ala Glu Trp Phe Leu Phe Ser Arg Thr
        530   535   540

His Ser Leu Lys Pro Gln Phe Thr Pro Thr Glu Arg Glu Met Leu Ala
545   550   555   560

Ser Phe Phe Thr Leu Tyr Val Thr Leu Gly Gly Gly Met Leu Asn Trp
                565   570   575

Ile Cys Arg Ala Thr Ala Met Tyr Leu Ala Ala Pro Tyr His Ser Arg
            580   585   590

Ser Ala Tyr Ile Ala Val Cys Glu Ser Leu Pro Tyr Tyr Tyr Ile Pro
        595   600   605

168

Val Asn Ser Asp Leu Leu Cys Asp Leu Glu Val Leu Leu Leu Gly Glu
    610   615   620

Val Asp Leu Pro Thr Val Cys Glu Ser Tyr Ala Thr Ile Ala His Glu
625   630   635   640

Leu Thr Gly Tyr Glu Ala Val Arg Thr Ala Ala Thr Asn Phe Met Ile
                645   650   655

Glu Phe Ala Asp Cys Tyr Lys Glu Ser Glu Thr Asp Leu Met Val Ser
                660   665   670

Ala Tyr Leu Gly Ala Val Leu Leu Leu Gln Arg Val Leu Gly His Ala
            675   680   685

Asn Leu Leu Leu Leu Leu Leu Ser Gly Ala Ala Leu Tyr Gly Gly Cys
    690   695   700

Ser Ile Tyr Ile Pro Arg Gly Ile Leu Asp Ala Tyr Asn Thr Leu Met
705   710   715   720

Leu Ala Ala Ser Pro Leu Tyr Ala His Gln Thr Leu Thr Ser Phe Trp
                725   730   735

Lys Asp Arg Asp Asp Ala Met Gln Thr Leu Gly Ile Arg Pro Thr Thr
                740   745   750

Asp Val Leu Pro Lys Glu Gln Asp Arg Ile Val Gln Ala Ser Pro Ile
            755   760   765

Glu Met Asn Phe Arg Phe Val Gly Leu Glu Thr Ile Tyr Pro Arg Glu
    770   775   780

Gln Pro Ile Pro Ser Val Asp Leu Ala Glu Asn Leu Met Gln Tyr Arg
785   790   795   800

Asn Glu Ile Leu Gly Leu Asp Trp Lys Ser Val Ala Met His Leu Leu
                805   810   815

Arg Lys Tyr

<210> 15

<211> 661
<212> PRT
<213> Varicella zoster

<400> 15

Met Phe Ser Arg Phe Ala Arg Ser Phe Ser Ser Asp Asp Arg Thr Arg
1   5   10   15

Lys Ser Tyr Asp Gly Ser Tyr Gln Ser Phe Asn Ala Gly Glu Arg Asp
            20   25   30

Leu Pro Thr Pro Thr Arg Asp Trp Cys Ser Ile Ser Gln Arg Ile Thr
        35   40   45

Ser Glu Arg Val Arg Asp Gly Cys Leu Ile Pro Thr Pro Gly Glu Ala
    50   55   60

Leu Glu Thr Ala Val Lys Ala Leu Ser Glu Lys Thr Asp Ser Leu Thr
65   70   75   80

Ser Pro Val Leu Gln Ser Thr Glu Arg His Ser Val Leu Leu Gly Leu
                85   90   95

His His Asn Asn Val Pro Glu Ser Leu Val Val Ser Cys Met Ser Asn
            100   105   110

Asp Val His Asp Gly Phe Met Gln Arg Tyr Met Glu Thr Ile Gln Arg
        115   120   125

Cys Leu Asp Asp Leu Lys Leu Ser Gly Asp Gly Leu Trp Trp Val Tyr
    130   135   140

Glu Asn Thr Tyr Trp Gln Tyr Leu Lys Tyr Thr Thr Gly Ala Glu Val
145   150   155   160

Pro Val Thr Ser Glu Lys Val Asn Lys Lys Ser Lys Ser Thr Val Leu
                165   170   175

Leu Phe Ser Ser Val Val Ala Asn Lys Pro Ile Ser Arg His Pro Phe
            180   185   190

Lys Ser Lys Val Ile Asn Ser Asp Tyr Arg Gly Ile Cys Gln Glu Leu
        195   200   205

170

```
Arg Glu Ala Leu Gly Ala Val Gln Lys Tyr Met Tyr Phe Met Arg Pro
    210                     215                 220

Asp Asp Pro Thr Asn Pro Ser Pro Asp Thr Arg Ile Arg Val Gln Glu
225                 230                 235                 240

Ile Ala Ala Tyr Thr Ala Thr Gly Tyr Gly Trp Met Leu Trp Phe Leu
                245                 250                 255

Asp Val Val Asp Ala Arg Val Cys Arg His Leu Lys Leu Gln Phe Arg
                260                 265                 270

Arg Ile Arg Gly Pro Arg Ala Ser Val Ile Pro Asp Asp Leu Leu Arg
                275                 280                 285

Arg His Leu Lys Thr Gly Pro Ala Val Ser Ala Gly Thr Gly Val Ala
    290                 295                 300

Phe Ile Leu Ala Ala Thr Thr Ala Ser Ala Leu Thr Ala Leu Leu Arg
305                 310                 315                 320

Ile Ser Val Leu Trp Arg Lys Glu Glu Trp Arg Asp Gly Leu Asn Gly
                325                 330                 335

Thr Ala Ala Ala Ile Val Ala Ala Val Glu Leu Ile Thr Leu Leu His
                340                 345                 350

His His Phe Gln Tyr Leu Ile Asn Met Met Leu Ile Gly Tyr Ala Cys
    355                 360                 365

Trp Gly Asp Gly Gly Leu Asn Asp Pro Tyr Ile Leu Lys Ala Leu Arg
    370                 375                 380

Ala Gln Gly Arg Phe Leu Tyr Phe Ala Gly Gln Leu Val Arg Thr Met
385                 390                 395                 400

Ser Thr His Ser Trp Val Val Leu Glu Thr Ser Thr His Met Trp Phe
                405                 410                 415

Ser Arg Ala Val Ala Gln Ser Ile Leu Ala His Gly Gly Lys Pro Thr
                420                 425                 430
```

171

Lys Tyr Tyr Ala Gln Val Leu Ala Ala Ser Lys Arg Tyr Thr Pro Leu
    435   440   445

His Leu Arg Arg Ile Ser Glu Pro Ser Ser Val Ser Asp Gln Pro Tyr
    450   455   460

Ile Arg Phe Asn Arg Leu Gly Ser Pro Ile Gly Thr Gly Ile Gly Asn
465   470   475   480

Leu Glu Cys Val Cys Leu Thr Gly Asn Tyr Leu Ser Asp Asp Val Asn
                485   490   495

Ala Ser Ser His Val Ile Asn Thr Glu Ala Pro Leu Asn Ser Ile Ala
                500   505   510

Pro Asp Thr Asn Arg Gln Arg Thr Ser Arg Val Leu Val Arg Pro Asp
            515   520   525

Thr Gly Leu Asp Val Thr Val Arg Lys Asn His Cys Leu Asp Ile Gly
    530   535   540

His Thr Asp Gly Ser Pro Val Asp Pro Thr Tyr Pro Asp His Tyr Thr
545   550   555   560

Arg Ile Lys Ala Glu Tyr Glu Gly Pro Val Arg Asp Glu Ser Asn Thr
                565   570   575

Met Phe Asp Gln Arg Ser Asp Leu Arg His Ile Glu Thr Gln Ala Ser
                580   585   590

Leu Asn Asp His Val Tyr Glu Asn Ile Pro Pro Lys Glu Val Gly Phe
            595   600   605

Asn Ser Ser Ser Asp Leu Asp Val Asp Ser Leu Asn Gly Tyr Thr Ser
    610   615   620

Gly Asp Met His Thr Asp Asp Asp Leu Ser Pro Asp Phe Ile Pro Asn
625   630   635   640

Asp Val Pro Val Arg Cys Lys Thr Thr Val Thr Phe Arg Lys Asn Thr
                645   650   655

Pro Lys Ser His His

172

660

<210> 16
<211> 301
<212> PRT
<213> Varicella zoster

<400> 16

Met Gly Asp Leu Ser Cys Trp Thr Lys Val Pro Gly Phe Thr Leu Thr
1   5   10   15

Gly Glu Leu Gln Tyr Leu Lys Gln Val Asp Asp Ile Leu Arg Tyr Gly
            20   25   30

Val Arg Lys Arg Asp Arg Thr Gly Ile Gly Thr Leu Ser Leu Phe Gly
            35   40   45

Met Gln Ala Arg Tyr Asn Leu Arg Asn Glu Phe Pro Leu Leu Thr Thr
        50   55   60

Lys Arg Val Phe Trp Arg Ala Val Val Glu Glu Leu Leu Trp Phe Ile
65   70   75   80

Arg Gly Ser Thr Asp Ser Lys Glu Leu Ala Ala Lys Asp Ile His Ile
                85   90   95

Trp Asp Ile Tyr Gly Ser Ser Lys Phe Leu Asn Arg Asn Gly Phe His
            100   105   110

Lys Arg His Thr Gly Asp Leu Gly Pro Ile Tyr Gly Phe Gln Trp Arg
            115   120   125

His Phe Gly Ala Glu Tyr Lys Asp Cys Gln Ser Asn Tyr Leu Gln Gln
        130   135   140

Gly Ile Asp Gln Leu Gln Thr Val Ile Asp Thr Ile Lys Thr Asn Pro
145   150   155   160

Glu Ser Arg Arg Met Ile Ile Ser Ser Trp Asn Pro Lys Asp Ile Pro
                165   170   175

Leu Met Val Leu Pro Pro Cys His Thr Leu Cys Gln Phe Tyr Val Ala
            180   185   190

173

Asn Gly Glu Leu Ser Cys Gln Val Tyr Gln Arg Ser Gly Asp Met Gly
        195   200   205

Leu Gly Val Pro Phe Asn Ile Ala Gly Tyr Ala Leu Leu Thr Tyr Ile
        210   215   220

Val Ala His Val Thr Gly Leu Lys Thr Gly Asp Leu Ile His Thr Met
225   230   235   240

Gly Asp Ala His Ile Tyr Leu Asn His Ile Asp Ala Leu Lys Val Gln
                245   250   255

Leu Ala Arg Ser Pro Lys Pro Phe Pro Cys Leu Lys Ile Ile Arg Asn
            260   265   270

Val Thr Asp Ile Asn Asp Phe Lys Trp Asp Asp Phe Gln Leu Asp Gly
        275   280   285

Tyr Asn Pro His Pro Pro Leu Lys Met Glu Met Ala Leu
    290   295   300

<210> 17
<211> 455
<212> PRT
<213> Varicella zoster

<400> 17

Met Gly Leu Phe Gly Leu Thr Arg Phe Ile His Glu His Lys Leu Val
1   5   10   15

Lys Pro Ser Ile Ile Ser Thr Pro Pro Gly Val Leu Thr Pro Val Ala
            20   25   30

Val Asp Val Trp Asn Val Met Tyr Thr Leu Leu Glu Arg Leu Tyr Pro
        35   40   45

Val Gly Lys Arg Glu Asn Leu His Gly Pro Ser Val Thr Ile His Cys
    50   55   60

Leu Gly Val Leu Leu Arg Leu Leu Thr Gln Arg Ser Tyr Tyr Pro Ile
65   70   75   80

Phe Val Leu Glu Arg Cys Thr Asp Gly Pro Leu Ser Arg Gly Ala Lys

174

```
                      85                        90                        95


    Ala Ile Met Ser Arg Ala Met Asn His Asp Glu Arg Gly Thr Ser Asp
                100                     105                     110


    Leu Thr Arg Val Leu Leu Ser Ser Asn Thr Ser Cys Ser Ile Lys Tyr
                115                     120                     125


    Asn Lys Thr Ser Glu Thr Tyr Asp Ser Val Phe Arg Asn Ser Ser Thr
        130                     135                     140


    Ser Cys Ile Pro Ser Glu Glu Asn Lys Ser Gln Asp Met Phe Leu Asp
    145                     150                     155                     160


    Gly Cys Pro Arg Gln Thr Asp Lys Thr Ile Cys Leu Arg Asp Gln Asn
                        165                     170                     175


    Val Cys Ser Leu Thr Ser Thr Met Pro Ser Arg Gly His Pro Asn His
                180                     185                     190


    Arg Leu Tyr His Lys Leu Cys Ala Ser Leu Ile Arg Trp Met Gly Tyr
                195                     200                     205


    Ala Tyr Val Glu Ala Val Asp Ile Glu Ala Asp Glu Ala Cys Ala Asn
        210                     215                     220


    Leu Phe His Thr Arg Thr Val Ala Leu Val Tyr Thr Thr Asp Thr Asp
    225                     230                     235                     240


    Leu Leu Phe Met Gly Cys Asp Ile Leu Leu Asp Ala Ile Pro Met Phe
                        245                     250                     255


    Ala Pro Val Val Arg Cys Arg Asp Leu Leu Gln Tyr Leu Gly Ile Thr
                260                     265                     270


    Tyr Pro Glu Phe Leu Val Ala Phe Val Arg Cys Gln Thr Asp Leu His
                275                     280                     285


    Thr Ser Asp Asn Leu Lys Ser Val Gln Gln Val Ile Gln Asp Thr Gly
        290                     295                     300


    Leu Lys Val Pro His Gln Met Asp Thr Ser Thr Arg Ser Pro Thr Tyr
    305                     310                     315                     320


                                      175
```

Asp Ser Trp Arg His Gly Glu Val Phe Lys Ser Leu Thr Val Ala Thr
            325   330   335

Ser Gly Lys Thr Glu Asn Gly Val Ser Val Ser Lys Tyr Ala Ser Asn
            340   345   350

Arg Ser Glu Val Thr Val Asp Ala Ser Trp Ala Leu Asn Leu Leu Pro
            355   360   365

Pro Ser Ser Ser Pro Leu Asp Asn Leu Glu Arg Ala Phe Val Glu His
            370   375   380

Ile Ile Ala Val Val Thr Pro Leu Thr Arg Gly Arg Leu Lys Leu Met
385   390   395   400

Lys Arg Val Asn Ile Met Gln Asn Thr Ala Asp Pro Tyr Met Val Ile
            405   410   415

Asn Thr Leu Tyr His Asn Leu Lys Gly Glu Lys Met Ala Arg Gln Tyr
            420   425   430

Ala Arg Ile Phe Lys Gln Phe Ile Pro Thr Pro Leu Pro Leu Asn Thr
            435   440   445

Val Leu Thr Lys Tyr Trp Asn
     450   455

<210>   18
<211>   1038
<212>   PRT
<213>   Varicella zoster

<400>   18

Met Glu Glu Pro Ile Cys Tyr Asp Thr Gln Lys Leu Leu Asp Asp Leu
1   5   10   15

Ser Asn Leu Lys Val Gln Glu Ala Asp Asn Glu Arg Pro Trp Ser Pro
            20   25   30

Glu Lys Thr Glu Ile Ala Arg Val Lys Val Val Lys Phe Leu Arg Ser
            35   40   45

176

Thr Gln Lys Ile Pro Ala Lys His Phe Ile Gln Ile Trp Glu Pro Leu
    50   55   60

His Ser Asn Ile Cys Phe Val Tyr Ser Asn Thr Phe Leu Ala Glu Ala
65   70   75   80

Ala Phe Thr Ala Glu Asn Leu Pro Gly Leu Leu Phe Trp Arg Leu Asp
                85   90   95

Leu Asp Trp Thr Ile Glu Glu Pro Gly Asn Ser Leu Lys Ile Leu Thr
            100   105   110

Gln Leu Ser Ser Val Val Gln Asp Ser Glu Thr Leu His Arg Leu Ser
        115   120   125

Ala Asn Lys Leu Arg Thr Ser Ser Lys Phe Gly Pro Val Ser Ile His
    130   135   140

Phe Ile Ile Thr Asp Trp Ile Asn Met Tyr Glu Val Ala Leu Lys Asp
145   150   155   160

Ala Thr Thr Ala Ile Glu Ser Pro Phe Thr His Ala Arg Ile Gly Met
            165   170   175

Leu Glu Ser Ala Ile Ala Ala Leu Thr Gln His Lys Phe Ala Ile Ile
            180   185   190

Tyr Asp Met Pro Phe Val Gln Glu Gly Ile Arg Val Leu Thr Gln Tyr
        195   200   205

Ala Gly Trp Leu Leu Pro Phe Asn Val Met Trp Asn Gln Ile Gln Asn
    210   215   220

Ser Ser Leu Thr Pro Leu Thr Arg Ala Leu Phe Ile Ile Cys Met Ile
225   230   235   240

Asp Glu Tyr Leu Thr Glu Thr Pro Val His Ser Ile Ser Glu Leu Phe
            245   250   255

Ala Asp Thr Val Asn Leu Ile Lys Asp Glu Ala Phe Val Ser Ile Glu
            260   265   270

Glu Ala Val Thr Asn Pro Arg Thr Val His Glu Ser Arg Ile Ser Ser

177

Ala Leu Ala Tyr Arg Asp Pro Tyr Val Phe Glu Thr Ser Pro Gly Met
    290   295   300

Leu Ala Arg Arg Leu Arg Leu Asp Asn Gly Ile Trp Glu Ser Asn Leu
305   310   315   320

Leu Ser Leu Ser Thr Pro Gly Ile His Ile Glu Ala Leu Leu His Leu
            325   330   335

Leu Asn Ser Asp Pro Glu Ala Glu Thr Thr Ser Gly Ser Asn Val Ala
            340   345   350

Glu His Thr Arg Gly Ile Trp Glu Lys Val Gln Ala Ser Thr Ser Pro
        355   360   365

Ser Met Leu Ile Ser Thr Leu Ala Glu Ser Gly Phe Thr Arg Phe Ser
    370   375   380

Cys Lys Leu Leu Arg Arg Phe Ile Ala His His Thr Leu Ala Gly Phe
385   390   395   400

Ile His Gly Ser Val Val Ala Asp Glu His Ile Thr Asp Phe Gln Gln
            405   410   415

Thr Leu Gly Cys Leu Ala Leu Val Gly Gly Leu Ala Tyr Gln Leu Val
            420   425   430

Glu Thr Tyr Ala Pro Thr Thr Glu Tyr Val Leu Thr Tyr Thr Arg Thr
        435   440   445

Val Asn Glu Thr Glu Lys Arg Tyr Glu Thr Leu Leu Pro Ala Leu Gly
    450   455   460

Leu Pro Pro Gly Gly Leu Gly Gln Ile Met Arg Arg Cys Phe Ala Pro
465   470   475   480

Arg Pro Leu Ile Glu Ser Ile Gln Ala Thr Arg Val Ile Leu Leu Asn
            485   490   495

Glu Ile Ser His Ala Glu Ala Arg Glu Thr Thr Tyr Phe Lys Gln Thr
            500   505   510

His Asn Gln Ser Ser Gly Ala Leu Leu Pro Gln Ala Gly Gln Ser Ala
        515   520   525

Val Arg Glu Ala Val Leu Thr Trp Phe Asp Leu Arg Met Asp Ser Arg
        530   535   540

Trp Gly Ile Thr Pro Pro Val Asp Val Gly Met Thr Pro Pro Ile Cys
545   550   555   560

Val Asp Pro Pro Ala Thr Gly Leu Glu Ala Val Met Ile Thr Glu Ala
                565   570   575

Leu Lys Ile Ala Tyr Pro Thr Glu Tyr Asn Arg Ser Ser Val Phe Val
                580   585   590

Glu Pro Ser Phe Val Pro Tyr Ile Ile Ala Thr Ser Thr Leu Asp Ala
        595   600   605

Leu Ser Ala Thr Ile Ala Leu Ser Phe Asp Thr Arg Gly Ile Gln Gln
        610   615   620

Ala Leu Ser Ile Leu Gln Trp Ala Arg Asp Tyr Gly Ser Gly Thr Val
625   630   635   640

Pro Asn Ala Asp Gly Tyr Arg Thr Lys Leu Ser Ala Leu Ile Thr Ile
                645   650   655

Leu Glu Pro Phe Thr Arg Thr His Pro Pro Val Leu Leu Pro Ser His
                660   665   670

Val Ser Thr Ile Asp Ser Leu Ile Cys Glu Leu His Arg Thr Val Gly
        675   680   685

Ile Ala Val Asp Leu Leu Pro Gln His Val Arg Pro Leu Val Pro Asp
        690   695   700

Arg Pro Ser Ile Thr Asn Ser Val Phe Leu Ala Thr Leu Tyr Tyr Asp
705   710   715   720

Glu Leu Tyr Gly Arg Trp Thr Arg Leu Asp Lys Thr Ser Gln Ala Leu
                725   730   735

179

```
Val Glu Asn Phe Thr Ser Asn Ala Leu Val Val Ser Arg Tyr Met Leu
        740                 745                 750

Met Leu Gln Lys Phe Phe Ala Cys Arg Phe Tyr Pro Thr Pro Asp Leu
        755                 760                 765

Gln Ala Val Gly Ile Cys Asn Pro Lys Val Glu Arg Asp Glu Gln Phe
    770                 775                 780

Gly Val Trp Arg Leu Asn Asp Leu Ala Asp Ala Val Gly His Ile Val
785                 790                 795                 800

Gly Thr Ile Gln Gly Ile Arg Thr Gln Met Arg Val Gly Ile Ser Ser
                805                 810                 815

Leu Arg Thr Ile Met Ala Asp Ala Ser Ser Ala Leu Arg Glu Cys Glu
                820                 825                 830

Asn Leu Met Thr Lys Thr Ser Thr Ser Ala Ile Gly Pro Leu Phe Ser
        835                 840                 845

Thr Met Ala Ser Arg Tyr Ala Arg Phe Thr Gln Asp Gln Met Asp Ile
    850                 855                 860

Leu Met Arg Val Asp Lys Leu Thr Thr Gly Glu Asn Ile Pro Gly Leu
865                 870                 875                 880

Ala Asn Val Glu Ile Phe Leu Asn Arg Trp Glu Arg Ile Ala Thr Ala
                885                 890                 895

Cys Arg His Ala Thr Ala Val Pro Ser Ala Glu Ser Ile Ala Thr Val
            900                 905                 910

Cys Asn Glu Leu Arg Arg Gly Leu Lys Asn Ile Gln Glu Asp Arg Val
        915                 920                 925

Asn Ala Pro Thr Ser Tyr Met Ser His Ala Arg Asn Leu Glu Asp His
    930                 935                 940

Lys Ala Ala Val Ser Phe Val Met Asp Ser Arg Gln Gln Phe Ile Val
945                 950                 955                 960
```

180

```
Asp Ser Gly Pro Gln Met Gly Ala Val Leu Thr Ser Gln Cys Asn Ile
            965                 970                 975


Gly Thr Trp Glu Asn Val Asn Ala Thr Phe Leu His Asp Asn Val Lys
            980                 985                 990


Ile Thr Thr Thr Val Arg Asp Val  Ile Ser Glu Ala Pro  Thr Leu Ile
            995                 1000                1005


Ile Gly  Gln Arg Trp Leu Arg  Pro Asp Glu Ile Leu  Ser Asn Val
            1010                1015                1020


Asp Leu  Arg Leu Gly Val Pro  Gly Asn Thr Ser Gly  Ser Asp Pro
            1025                1030                1035


<210>  19
<211>  2763
<212>  PRT
<213>  Varicella zoster

<400>  19

Met Asp Ile Ile Pro Pro Ile Ala Val Thr Val Ala Gly Val Gly Ser
1               5                   10                  15


Arg Asn Gln Phe Asp Gly Ala Leu Gly Pro Ala Ser Gly Leu Ser Cys
            20                  25                  30


Leu Arg Thr Ser Leu Ser Phe Leu His Met Thr Tyr Ala His Gly Ile
            35                  40                  45


Asn Ala Thr Leu Ser Ser Asp Met Ile Asp Gly Cys Leu Gln Glu Gly
    50                  55                  60


Ala Ala Trp Thr Thr Asp Leu Ser Asn Met Gly Arg Gly Val Pro Asp
65                  70                  75                  80


Met Cys Ala Leu Val Asp Leu Pro Asn Arg Ile Ser Tyr Ile Lys Leu
                85                  90                  95


Gly Asp Thr Thr Ser Thr Cys Cys Val Leu Ser Arg Ile Tyr Gly Asp
            100                 105                 110


Ser His Phe Phe Thr Val Pro Asp Glu Gly Phe Met Cys Thr Gln Ile
        115                 120                 125
```

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Pro Ala Arg Ala Phe Phe Asp Asp Val Trp Met Gly Arg Glu Glu Ser
    130   135   140

Tyr Thr Ile Ile Thr Val Asp Ser Thr Gly Met Ala Ile Tyr Arg Gln
145   150   155   160

Gly Asn Ile Ser Phe Ile Phe Asp Pro His Gly His Gly Thr Ile Gly
            165   170   175

Gln Ala Val Val Val Arg Val Asn Thr Thr Asp Val Tyr Ser Tyr Ile
        180   185   190

Ala Ser Glu Tyr Thr His Arg Pro Asp Asn Val Glu Ser Gln Trp Ala
        195   200   205

Ala Ala Leu Val Phe Phe Val Thr Ala Asn Asp Gly Pro Val Ser Glu
    210   215   220

Glu Ala Leu Ser Ser Ala Val Thr Leu Ile Tyr Gly Ser Cys Asp Thr
225   230   235   240

Tyr Phe Thr Asp Glu Gln Tyr Cys Glu Lys Leu Val Thr Ala Gln His
            245   250   255

Pro Leu Leu Leu Ser Pro Pro Asn Ser Thr Thr Ile Val Leu Asn Lys
        260   265   270

Ser Ser Ile Val Pro Leu His Gln Asn Val Gly Glu Ser Val Ser Leu
        275   280   285

Glu Ala Thr Leu His Ser Thr Leu Thr Asn Thr Val Ala Leu Asp Pro
    290   295   300

Arg Cys Ser Tyr Ser Glu Val Asp Pro Trp His Ala Val Leu Glu Thr
305   310   315   320

Thr Ser Thr Gly Ser Gly Val Leu Asp Cys Arg Arg Arg Arg Arg Pro
            325   330   335

Ser Trp Thr Pro Pro Ser Ser Glu Glu Asn Leu Ala Cys Ile Asp Asp
            340   345   350

```
Gly Leu Val Asn Asn Thr His Ser Thr Asp Asn Leu His Lys Pro Ala
    355                 360                 365

Lys Lys Val Leu Lys Phe Lys Pro Thr Val Asp Val Pro Asp Lys Thr
    370                 375                 380

Gln Val Ala His Val Leu Pro Arg Leu Arg Glu Val Ala Asn Thr Pro
385                 390                 395                 400

Asp Val Val Leu Asn Val Ser Asn Val Asp Thr Pro Glu Ser Ser Pro
                405                 410                 415

Thr Phe Ser Arg Asn Met Asn Val Gly Ser Ser Leu Lys Asp Arg Lys
                420                 425                 430

Pro Phe Leu Phe Glu Gln Ser Gly Asp Val Asn Met Val Val Glu Lys
                435                 440                 445

Leu Leu Gln His Gly His Glu Ile Ser Asn Gly Tyr Val Gln Asn Ala
    450                 455                 460

Val Gly Thr Leu Asp Thr Val Ile Thr Gly His Thr Asn Val Pro Ile
465                 470                 475                 480

Trp Val Thr Arg Pro Leu Val Met Pro Asp Glu Lys Asp Pro Leu Glu
                485                 490                 495

Leu Phe Ile Asn Leu Thr Ile Leu Arg Leu Thr Gly Phe Val Val Glu
                500                 505                 510

Asn Gly Thr Arg Thr His His Gly Ala Thr Ser Val Val Ser Asp Phe
                515                 520                 525

Ile Gly Pro Leu Gly Glu Ile Leu Thr Gly Phe Pro Ser Ala Ala Glu
    530                 535                 540

Leu Ile Arg Val Thr Ser Leu Ile Leu Thr Asn Met Pro Gly Ala Glu
545                 550                 555                 560

Tyr Ala Ile Lys Thr Val Leu Arg Lys Lys Cys Thr Ile Gly Met Leu
                565                 570                 575
```

183

```
Ile Ile Ala Lys Phe Gly Leu Val Ala Met Arg Val Gln Asp Thr Thr
        580                 585                 590


Gly Ala Leu His Ala Glu Leu Asp Val Leu Glu Ala Asp Leu Gly Gly
        595                 600                 605


Ser Ser Pro Ile Asp Leu Tyr Ser Arg Leu Ser Thr Gly Leu Ile Ser
    610                 615                 620


Ile Leu Asn Ser Pro Ile Ile Ser His Pro Gly Leu Phe Ala Glu Leu
625                 630                 635                 640


Ile Pro Thr Arg Thr Gly Ser Leu Ser Glu Arg Ile Arg Leu Leu Cys
            645                 650                 655


Glu Leu Val Ser Ala Arg Glu Thr Arg Tyr Met Arg Glu His Thr Ala
            660                 665                 670


Leu Val Ser Ser Val Lys Ala Leu Glu Asn Ala Leu Arg Ser Thr Arg
        675                 680                 685


Asn Lys Ile Asp Ala Ile Gln Ile Pro Glu Val Pro Gln Glu Pro Pro
    690                 695                 700


Glu Glu Thr Asp Ile Pro Pro Glu Glu Leu Ile Arg Arg Val Tyr Glu
705                 710                 715                 720


Ile Arg Ser Glu Val Thr Met Leu Leu Thr Ser Ala Val Thr Glu Tyr
            725                 730                 735


Phe Thr Arg Gly Val Leu Tyr Ser Thr Arg Ala Leu Ile Ala Glu Gln
            740                 745                 750


Ser Pro Arg Arg Phe Arg Val Ala Thr Ala Ser Thr Ala Pro Ile Gln
        755                 760                 765


Arg Leu Leu Asp Ser Leu Pro Glu Phe Asp Ala Lys Leu Thr Ala Ile
    770                 775                 780


Ile Ser Ser Leu Ser Ile His Pro Pro Pro Glu Thr Ile Gln Asn Leu
785                 790                 795                 800


Pro Val Val Ser Leu Leu Lys Glu Leu Ile Lys Glu Gly Glu Asp Leu
```

184

Asn Thr Asp Thr Ala Leu Val Ser Trp Leu Ser Val Val Gly Glu Ala
          820   825   830

Gln Thr Ala Gly Tyr Leu Ser Arg Arg Glu Phe Asp Glu Leu Ser Arg
          835   840   845

Thr Ile Lys Thr Ile Asn Thr Arg Ala Thr Gln Arg Ala Ser Ala Glu
     850   855   860

Ala Glu Leu Ser Cys Phe Asn Thr Leu Ser Ala Ala Val Asp Gln Ala
865   870   875   880

Val Lys Asp Tyr Glu Thr Tyr Asn Asn Gly Glu Val Lys Tyr Pro Glu
               885   890   895

Ile Thr Arg Asp Asp Leu Leu Ala Thr Ile Val Arg Ala Thr Asp Asp
          900   905   910

Leu Val Arg Gln Ile Lys Ile Leu Ser Asp Pro Met Ile Gln Ser Gly
          915   920   925

Leu Gln Pro Ser Ile Lys Arg Arg Leu Glu Thr Arg Leu Lys Glu Val
          930   935   940

Gln Thr Tyr Ala Asn Glu Ala Arg Thr Thr Gln Asp Thr Ile Lys Ser
945   950   955   960

Arg Lys Gln Ala Ala Tyr Asn Lys Leu Gly Gly Leu Leu Arg Pro Val
               965   970   975

Thr Gly Phe Val Gly Leu Arg Ala Ala Val Asp Leu Leu Pro Glu Leu
          980   985   990

Ala Ser Glu Leu Asp Val Gln Gly Ala Leu Val Asn Leu Arg Thr Lys
          995   1000   1005

Val Leu Glu Ala Pro Val Glu Ile Arg Ser Gln Leu Thr Gly Asp
     1010   1015   1020

Phe Trp Ala Leu Phe Asn Gln Tyr Arg Asp Ile Leu Glu His Pro
     1025   1030   1035

185

Gly Asn Ala Arg Thr Ser Val Leu Gly Gly Leu Gly Ala Cys Phe
    1040   1045   1050

Thr Ala Ile Ile Glu Ile Val Pro Ile Pro Thr Glu Tyr Arg Pro
    1055   1060   1065

Ser Leu Leu Ala Phe Phe Gly Asp Val Ala Asp Val Leu Ala Ser
    1070   1075   1080

Asp Ile Ala Thr Val Ser Thr Asn Pro Glu Ser Glu Ser Ala Ile
    1085   1090   1095

Asn Ala Val Val Ala Thr Leu Ser Lys Ala Thr Leu Val Ser Ser
    1100   1105   1110

Thr Val Pro Ala Leu Ser Phe Val Leu Ser Leu Tyr Lys Lys Tyr
    1115   1120   1125

Gln Ala Leu Gln Gln Glu Ile Thr Asn Thr His Lys Leu Thr Glu
    1130   1135   1140

Leu Gln Lys Gln Leu Gly Asp Asp Phe Ser Thr Leu Ala Val Ser
    1145   1150   1155

Ser Gly His Leu Lys Phe Ile Ser Ser Ser Asn Val Asp Asp Tyr
    1160   1165   1170

Glu Ile Asn Asp Ala Ile Leu Ser Ile Gln Thr Asn Val His Ala
    1175   1180   1185

Leu Met Asp Thr Val Lys Leu Val Glu Val Glu Leu Gln Lys Leu
    1190   1195   1200

Pro Pro His Cys Ile Ala Gly Thr Ser Thr Leu Ser Arg Val Val
    1205   1210   1215

Lys Asp Leu His Lys Leu Val Thr Met Ala His Glu Lys Lys Glu
    1220   1225   1230

Gln Ala Lys Val Leu Ile Thr Asp Cys Glu Arg Ala His Lys Gln
    1235   1240   1245

186

```
Gln Thr   Thr Arg Val Leu Tyr   Glu Arg Trp Thr Arg   Asp Ile Ile
    1250                1255                1260

Ala Cys   Leu Glu Ala Met Glu   Thr Arg His Ile Phe   Asn Gly Thr
    1265                1270                1275

Glu Leu   Ala Arg Leu Arg Asp   Met Ala Ala Ala Gly   Gly Phe Asp
    1280                1285                1290

Ile His   Ala Val Tyr Pro Gln   Ala Arg Gln Val Val   Ala Ala Cys
    1295                1300                1305

Glu Thr   Thr Ala Val Thr Ala   Leu Asp Thr Val Phe   Arg His Asn
    1310                1315                1320

Pro Tyr   Thr Pro Glu Asn Thr   Asn Ile Pro Pro Pro   Leu Ala Leu
    1325                1330                1335

Leu Arg   Gly Leu Thr Trp Phe   Asp Asp Phe Ser Ile   Thr Ala Pro
    1340                1345                1350

Val Phe   Thr Val Met Phe Pro   Gly Val Ser Ile Glu   Gly Leu Leu
    1355                1360                1365

Leu Leu   Met Arg Ile Arg Ala   Val Val Leu Leu Ser   Ala Asp Thr
    1370                1375                1380

Ser Ile   Asn Gly Ile Pro Asn   Tyr Arg Asp Met Ile   Leu Arg Thr
    1385                1390                1395

Ser Gly   Asp Leu Leu Gln Ile   Pro Ala Leu Ala Gly   Tyr Val Asp
    1400                1405                1410

Phe Tyr   Thr Arg Ser Tyr Asp   Gln Phe Ile Thr Glu   Ser Val Thr
    1415                1420                1425

Leu Ser   Glu Leu Arg Ala Asp   Ile Arg Gln Ala Ala   Gly Ala Lys
    1430                1435                1440

Leu Thr   Glu Ala Asn Lys Ala   Leu Glu Glu Val Thr   His Val Arg
    1445                1450                1455
```

```
Ala His  Glu Thr Ala Lys Leu  Ala Leu Lys Glu Gly  Val Phe Ile
    1460                 1465                 1470


Thr Leu  Pro Ser Glu Gly Leu  Leu Ile Arg Ala Ile  Glu Tyr Phe
    1475                 1480                 1485


Thr Thr  Phe Asp His Lys Arg  Phe Ile Gly Thr Ala  Tyr Glu Arg
    1490                 1495                 1500


Val Leu  Gln Thr Met Val Asp  Arg Asp Leu Lys Glu  Ala Asn Ala
    1505                 1510                 1515


Glu Leu  Ala Gln Phe Arg Met  Val Cys Gln Ala Thr  Lys Asn Arg
    1520                 1525                 1530


Ala Ile  Gln Ile Leu Gln Asn  Ile Val Asp Thr Ala  Asn Ala Thr
    1535                 1540                 1545


Glu Gln  Gln Glu Asp Val Asp  Phe Thr Asn Leu Lys  Thr Leu Leu
    1550                 1555                 1560


Lys Leu  Thr Pro Pro Pro Lys  Thr Ile Ala Leu Ala  Ile Asp Arg
    1565                 1570                 1575


Ser Thr  Ser Val Gln Asp Ile  Val Thr Gln Phe Ala  Leu Leu Leu
    1580                 1585                 1590


Gly Arg  Leu Glu Glu Glu Thr  Gly Thr Leu Asp Ile  Gln Ala Val
    1595                 1600                 1605


Asp Trp  Met Tyr Gln Ala Arg  Asn Ile Ile Asp Ser  His Pro Leu
    1610                 1615                 1620


Ser Val  Arg Ile Asp Gly Thr  Gly Pro Leu His Thr  Tyr Lys Asp
    1625                 1630                 1635


Arg Val  Asp Lys Leu Tyr Ala  Leu Arg Thr Lys Leu  Asp Leu Leu
    1640                 1645                 1650


Arg Arg  Arg Ile Glu Thr Gly  Glu Val Thr Trp Asp  Asp Ala Trp
    1655                 1660                 1665


Thr Thr  Phe Lys Arg Glu Thr  Gly Asp Met Leu Ala  Ser Gly Asp


                              188
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           1670                    1675                     1680


Thr Tyr  Ala Thr Ser Val Asp  Ser Ile Lys Ala Leu  Gln Ala Ser
    1685                    1690                     1695


Ala Ser  Val Val Asp Met Leu  Cys Ser Glu Pro Glu  Phe Phe Leu
    1700                    1705                     1710


Leu Pro  Val Glu Thr Lys Asn  Arg Leu Gln Lys Lys  Gln Gln Glu
    1715                    1720                     1725


Arg Lys  Thr Ala Leu Asp Val  Val Leu Gln Lys Gln  Arg Gln Phe
    1730                    1735                     1740


Glu Glu  Thr Ala Ser Arg Leu  Arg Ala Leu Ile Glu  Arg Ile Pro
    1745                    1750                     1755


Thr Glu  Ser Asp His Asp Val  Leu Arg Met Leu Leu  Arg Asp Phe
    1760                    1765                     1770


Asp Gln  Phe Thr His Leu Pro  Ile Trp Ile Lys Thr  Gln Tyr Met
    1775                    1780                     1785


Thr Phe  Arg Asn Leu Leu Met  Val Arg Leu Gly Leu  Tyr Ala Ser
    1790                    1795                     1800


Tyr Ala  Glu Ile Phe Pro Pro  Ala Ser Pro Asn Gly  Val Phe Ala
    1805                    1810                     1815


Pro Ile  Pro Ala Met Ser Gly  Val Cys Leu Glu Asp  Gln Ser Arg
    1820                    1825                     1830


Cys Ile  Arg Ala Arg Val Ala  Ala Phe Met Gly Glu  Ala Ser Val
    1835                    1840                     1845


Val Gln  Thr Phe Arg Glu Ala  Arg Ser Ser Ile Asp  Ala Leu Phe
    1850                    1855                     1860


Gly Lys  Asn Leu Thr Phe Tyr  Leu Asp Thr Asp Gly  Val Pro Leu
    1865                    1870                     1875


Arg Tyr  Arg Val Cys Tyr Lys  Ser Val Gly Val Lys  Leu Gly Thr
    1880                    1885                     1890
```

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```
Met Leu  Cys Ser Gln Gly Gly  Leu Ser Leu Arg Pro  Ala Leu Pro
    1895                  1900                 1905

Asp Glu  Gly Ile Val Glu Glu  Thr Thr Leu Ser Ala  Leu Arg Val
    1910                  1915                 1920

Ala Asn  Glu Val Asn Glu Leu  Arg Ile Glu Tyr Glu  Ser Ala Ile
    1925                  1930                 1935

Lys Ser  Gly Phe Ser Ala Phe  Ser Thr Phe Val Arg  His Arg His
    1940                  1945                 1950

Ala Glu  Trp Gly Lys Thr Asn  Ala Arg Arg Ala Ile  Ala Glu Ile
    1955                  1960                 1965

Tyr Ala  Gly Leu Ile Thr Thr  Thr Leu Thr Arg Gln  Tyr Gly Val
    1970                  1975                 1980

His Trp  Asp Lys Leu Ile Tyr  Ser Phe Glu Lys His  His Leu Thr
    1985                  1990                 1995

Ser Val  Met Gly Asn Gly Leu  Thr Lys Pro Ile Gln  Arg Arg Gly
    2000                  2005                 2010

Asp Val  Arg Val Leu Glu Leu  Thr Leu Ser Asp Ile  Val Thr Ile
    2015                  2020                 2025

Leu Val  Ala Thr Thr Pro Val  His Leu Leu Asn Phe  Ala Arg Leu
    2030                  2035                 2040

Asp Leu  Ile Lys Gln His Glu  Tyr Met Ala Arg Thr  Leu Arg Pro
    2045                  2050                 2055

Val Ile  Glu Ala Ala Phe Arg  Gly Arg Leu Leu Val  Arg Ser Leu
    2060                  2065                 2070

Asp Gly  Asp Pro Lys Gly Asn  Ala Arg Ala Phe Phe  Asn Ala Ala
    2075                  2080                 2085

Pro Ser  Lys His Lys Leu Pro  Leu Ala Leu Gly Ser  Asn Gln Asp
    2090                  2095                 2100
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```
Pro Thr  Gly Gly Arg Ile Phe  Ala Phe Arg Met Ala  Asp Trp Lys
    2105              2110              2115

Leu Val  Lys Met Pro Gln Lys  Ile Thr Asp Pro Phe  Ala Pro Trp
    2120              2125              2130

Gln Leu  Ser Pro Pro Pro Gly  Val Lys Ala Asn Val  Asp Ala Val
    2135              2140              2145

Thr Arg  Ile Met Ala Thr Asp  Arg Leu Ala Thr Ile  Thr Val Leu
    2150              2155              2160

Gly Arg  Met Cys Leu Pro Pro  Ile Ser Leu Val Ser  Met Trp Asn
    2165              2170              2175

Thr Leu  Gln Pro Glu Glu Phe  Ala Tyr Arg Thr Gln  Asp Asp Val
    2180              2185              2190

Asp Ile  Ile Val Asp Ala Arg  Leu Asp Leu Ser Ser  Thr Leu Asn
    2195              2200              2205

Ala Arg  Phe Asp Thr Ala Pro  Ser Asn Thr Thr Leu  Glu Trp Asn
    2210              2215              2220

Thr Asp  Arg Lys Val Ile Thr  Asp Ala Tyr Ile Gln  Thr Gly Ala
    2225              2230              2235

Thr Thr  Val Phe Thr Val Thr  Gly Ala Ala Pro Thr  His Val Ser
    2240              2245              2250

Asn Val  Thr Ala Phe Asp Ile  Ala Thr Thr Ala Ile  Leu Phe Gly
    2255              2260              2265

Ala Pro  Leu Val Ile Ala Met  Glu Leu Thr Ser Val  Phe Ser Gln
    2270              2275              2280

Asn Ser  Gly Leu Thr Leu Gly  Leu Lys Leu Phe Asp  Ser Arg His
    2285              2290              2295

Met Ala  Thr Asp Ser Gly Ile  Ser Ser Ala Val Ser  Pro Asp Ile
    2300              2305              2310
```

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```
Val Ser  Trp Gly Leu Arg Leu  Leu His Met Asp Pro  His Pro Ile
    2315             2320             2325

Glu Asn  Ala Cys Leu Ile Val  Gln Leu Glu Lys Leu  Ser Ala Leu
    2330             2335             2340

Ile Ala  Asn Lys Pro Leu Thr  Asn Asn Pro Pro Cys  Leu Leu Leu
    2345             2350             2355

Leu Asp  Glu His Met Asn Pro  Ser Tyr Val Leu Trp  Glu Arg Lys
    2360             2365             2370

Asp Ser  Ile Pro Ala Pro Asp  Tyr Val Val Phe Trp  Gly Pro Glu
    2375             2380             2385

Ser Leu  Ile Asp Leu Pro Tyr  Ile Asp Ser Asp Glu  Asp Ser Phe
    2390             2395             2400

Pro Ser  Cys Pro Asp Asp Pro  Phe Tyr Ser Gln Ile  Ile Ala Gly
    2405             2410             2415

Tyr Ala  Pro Gln Gly Pro Pro  Asn Leu Asp Thr Thr  Asp Phe Tyr
    2420             2425             2430

Pro Thr  Glu Pro Leu Phe Lys  Ser Pro Val Gln Val  Val Arg Ser
    2435             2440             2445

Ser Lys  Cys Lys Lys Met Pro  Val Arg Pro Ala Gln  Pro Ala Gln
    2450             2455             2460

Pro Ala  Gln Pro Ala Gln Pro  Ala Gln Thr Val Gln  Pro Ala Gln
    2465             2470             2475

Pro Ile  Glu Pro Gly Thr Gln  Ile Val Val Gln Asn  Phe Lys Lys
    2480             2485             2490

Pro Gln  Ser Val Lys Thr Thr  Leu Ser Gln Lys Asp  Ile Pro Leu
    2495             2500             2505

Tyr Val  Glu Thr Glu Ser Glu  Thr Ala Val Leu Ile  Pro Lys Gln
    2510             2515             2520

Leu Thr  Thr Ser Ile Lys Thr  Thr Val Cys Lys Ser  Ile Thr Pro
```

```
        2525                    2530                    2535


Pro Asn  Asn Gln Leu Ser Asp  Trp Lys Asn Asn Pro  Gln Gln Asn
    2540                2545                2550


Gln Thr  Leu Asn Gln Ala Phe  Ser Lys Pro Ile Leu  Glu Ile Thr
    2555                2560                2565


Ser Ile  Pro Thr Asp Asp Ser  Ile Ser Tyr Arg Thr  Trp Ile Glu
    2570                2575                2580


Lys Ser  Asn Gln Thr Gln Lys  Arg His Gln Asn Asp  Pro Arg Met
    2585                2590                2595


Tyr Asn  Ser Lys Thr Val Phe  His Pro Val Asn Asn  Gln Leu Pro
    2600                2605                2610


Ser Trp  Val Asp Thr Ala Ala  Asp Ala Pro Gln Thr  Asp Leu Leu
    2615                2620                2625


Thr Asn  Tyr Lys Thr Arg Gln  Pro Ser Pro Asn Phe  Pro Arg Asp
    2630                2635                2640


Val His  Thr Trp Gly Val Ser  Ser Asn Pro Phe Asn  Ser Pro Asn
    2645                2650                2655


Arg Asp  Leu Tyr Gln Ser Asp  Phe Ser Glu Pro Ser  Asp Gly Tyr
    2660                2665                2670


Ser Ser  Glu Ser Glu Asn Ser  Ile Val Leu Ser Leu  Asp Glu His
    2675                2680                2685


Arg Ser  Cys Arg Val Pro Arg  His Val Arg Val Val  Asn Ala Asp
    2690                2695                2700


Val Val  Thr Gly Arg Arg Tyr  Val Arg Gly Thr Ala  Leu Gly Ala
    2705                2710                2715


Leu Ala  Leu Leu Ser Gln Ala  Cys Arg Arg Met Ile  Asp Asn Val
    2720                2725                2730


Arg Tyr  Thr Arg Lys Leu Leu  Met Asp His Thr Glu  Asp Ile Phe
    2735                2740                2745


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```

Gln Gly Leu Gly Tyr Val Lys Leu Leu Leu Asp Gly Thr Tyr Ile
    2750   2755   2760

<210> 20
<211> 585
<212> PRT
<213> Varicella zoster

<400> 20

Met Asp Arg Val Glu Ser Glu Glu Pro Met Asp Gly Phe Glu Ser Pro
1   5   10   15

Val Phe Ser Glu Asn Thr Ser Ser Asn Ser Gly Trp Cys Ser Asp Ala
            20   25   30

Phe Ser Asp Ser Tyr Ile Ala Tyr Asn Pro Ala Leu Leu Leu Lys Asn
        35   40   45

Asp Leu Leu Phe Ser Glu Leu Leu Phe Ala Ser His Leu Ile Asn Val
    50   55   60

Pro Arg Ala Ile Glu Asn Asn Val Thr Tyr Glu Ala Ser Ser Ala Val
65   70   75   80

Gly Val Asp Asn Glu Met Thr Ser Ser Thr Thr Glu Phe Ile Glu Glu
            85   90   95

Ile Gly Asp Val Leu Ala Leu Asp Arg Ala Cys Leu Val Cys Arg Thr
        100   105   110

Leu Asp Leu Tyr Lys Arg Lys Phe Gly Leu Thr Pro Glu Trp Val Ala
    115   120   125

Asp Tyr Ala Met Leu Cys Met Lys Ser Leu Ala Ser Pro Pro Cys Ala
    130   135   140

Val Val Thr Phe Ser Ala Ala Phe Glu Phe Val Tyr Leu Met Asp Arg
145   150   155   160

Tyr Tyr Leu Cys Arg Tyr Asn Val Thr Leu Val Gly Ser Phe Ala Arg
            165   170   175

194

Arg Thr Leu Ser Leu Leu Asp Ile Gln Arg His Phe Phe Leu His Val
        180   185   190

Cys Phe Arg Thr Asp Gly Gly Leu Pro Gly Ile Arg Pro Pro Pro Gly
        195   200   205

Lys Glu Met Ala Asn Lys Val Arg Tyr Ser Asn Tyr Ser Phe Phe Val
    210   215   220

Gln Ala Val Val Arg Ala Ala Leu Leu Ser Ile Ser Thr Ser Arg Leu
225   230   235   240

Asp Glu Thr Glu Thr Arg Lys Ser Phe Tyr Phe Asn Gln Asp Gly Leu
                245   250   255

Thr Gly Gly Pro Gln Pro Leu Ala Ala Ala Leu Ala Asn Trp Lys Asp
                260   265   270

Cys Ala Arg Met Val Asp Cys Ser Ser Ser Glu His Arg Thr Ser Gly
        275   280   285

Met Ile Thr Cys Ala Glu Arg Ala Leu Lys Glu Asp Ile Glu Phe Glu
    290   295   300

Asp Ile Leu Ile Asp Lys Leu Lys Lys Ser Ser Tyr Val Glu Ala Ala
305   310   315   320

Trp Gly Tyr Ala Asp Leu Ala Leu Leu Leu Leu Ser Gly Val Ala Thr
                325   330   335

Trp Asn Val Asp Glu Arg Thr Asn Cys Ala Ile Glu Thr Arg Val Gly
                340   345   350

Cys Val Lys Ser Tyr Trp Gln Ala Asn Arg Ile Glu Asn Ser Arg Asp
        355   360   365

Val Pro Lys Gln Phe Ser Lys Phe Thr Ser Glu Asp Ala Cys Pro Glu
        370   375   380

Val Ala Phe Gly Pro Ile Leu Leu Thr Thr Leu Lys Asn Ala Lys Cys
385   390   395   400

Arg Gly Arg Thr Asn Thr Glu Cys Met Leu Cys Cys Leu Leu Thr Ile

195

Gly His Tyr Trp Ile Ala Leu Arg Gln Phe Lys Arg Asp Ile Leu Ala
                420   425   430

Tyr Ser Ala Asn Asn Thr Ser Leu Phe Asp Cys Ile Glu Pro Val Ile
        435   440   445

Asn Ala Trp Ser Leu Asp Asn Pro Ile Lys Leu Lys Phe Pro Phe Asn
    450   455   460

Asp Glu Gly Arg Phe Ile Thr Ile Val Lys Ala Ala Gly Ser Glu Ala
465   470   475   480

Val Tyr Lys His Leu Phe Cys Asp Leu Leu Cys Ala Leu Ser Glu Leu
                485   490   495

Gln Thr Asn Pro Lys Ile Leu Phe Ala His Pro Thr Thr Ala Asp Lys
            500   505   510

Glu Val Leu Glu Leu Tyr Lys Ala Gln Leu Ala Ala Gln Asn Arg Phe
        515   520   525

Glu Gly Arg Val Cys Ala Gly Leu Trp Thr Leu Ala Tyr Ala Phe Lys
        530   535   540

Ala Tyr Gln Ile Phe Pro Arg Lys Pro Thr Ala Asn Ala Ala Phe Ile
545   550   555   560

Arg Asp Gly Gly Leu Met Leu Arg Arg His Ala Ile Ser Leu Val Ser
                565   570   575

Leu Glu His Thr Leu Ser Lys Tyr Val
                580   585

<210> 21
<211> 1204
<212> PRT
<213> Varicella zoster

<400> 21

Met Glu Asn Thr Gln Lys Thr Val Thr Val Pro Thr Gly Pro Leu Gly
1   5   10   15

196

```
Tyr Val Tyr Ala Cys Arg Val Glu Asp Leu Asp Leu Glu Glu Ile Ser
        20              25              30

Phe Leu Ala Ala Arg Ser Thr Asp Ser Asp Leu Ala Leu Leu Pro Leu
        35              40              45

Met Arg Asn Leu Thr Val Glu Lys Thr Phe Thr Ser Ser Leu Ala Val
        50              55              60

Val Ser Gly Ala Arg Thr Thr Gly Leu Ala Gly Ala Gly Ile Thr Leu
65              70              75              80

Lys Leu Thr Thr Ser His Phe Tyr Pro Ser Val Phe Val Phe His Gly
                85              90              95

Gly Lys His Val Leu Pro Ser Ser Ala Ala Pro Asn Leu Thr Arg Ala
            100             105             110

Cys Asn Ala Ala Arg Glu Arg Phe Gly Phe Ser Arg Cys Gln Gly Pro
        115             120             125

Pro Val Asp Gly Ala Val Glu Thr Thr Gly Ala Glu Ile Cys Thr Arg
        130             135             140

Leu Gly Leu Glu Pro Glu Asn Thr Ile Leu Tyr Leu Val Val Thr Ala
145             150             155             160

Leu Phe Lys Glu Ala Val Phe Met Cys Asn Val Phe Leu His Tyr Gly
                165             170             175

Gly Leu Asp Ile Val His Ile Asn His Gly Asp Val Ile Arg Ile Pro
            180             185             190

Leu Phe Pro Val Gln Leu Phe Met Pro Asp Val Asn Arg Leu Val Pro
            195             200             205

Asp Pro Phe Asn Thr His His Arg Ser Ile Gly Glu Gly Phe Val Tyr
        210             215             220

Pro Thr Pro Phe Tyr Asn Thr Gly Leu Cys His Leu Ile His Asp Cys
225             230             235             240
```

197

```
Val Ile Ala Pro Met Ala Val Ala Leu Arg Val Arg Asn Val Thr Ala
                245                 250                 255

Val Ala Arg Gly Ala Ala His Leu Ala Phe Asp Glu Asn His Glu Gly
            260                 265                 270

Ala Val Leu Pro Pro Asp Ile Thr Tyr Thr Tyr Phe Gln Ser Ser Ser
            275                 280                 285

Ser Gly Thr Thr Thr Ala Arg Gly Ala Arg Arg Asn Asp Val Asn Ser
    290                 295                 300

Thr Ser Lys Pro Ser Pro Ser Gly Gly Phe Glu Arg Arg Leu Ala Ser
305                 310                 315                 320

Ile Met Ala Ala Asp Thr Ala Leu His Ala Glu Val Ile Phe Asn Thr
                325                 330                 335

Gly Ile Tyr Glu Glu Thr Pro Thr Asp Ile Lys Glu Trp Pro Met Phe
            340                 345                 350

Ile Gly Met Glu Gly Thr Leu Pro Arg Leu Asn Ala Leu Gly Ser Tyr
            355                 360                 365

Thr Ala Arg Val Ala Gly Val Ile Gly Ala Met Val Phe Ser Pro Asn
    370                 375                 380

Ser Ala Leu Tyr Leu Thr Glu Val Glu Asp Ser Gly Met Thr Glu Ala
385                 390                 395                 400

Lys Asp Gly Gly Pro Gly Pro Ser Phe Asn Arg Phe Tyr Gln Phe Ala
                405                 410                 415

Gly Pro His Leu Ala Ala Asn Pro Gln Thr Asp Arg Asp Gly His Val
            420                 425                 430

Leu Ser Ser Gln Ser Thr Gly Ser Ser Asn Thr Glu Phe Ser Val Asp
            435                 440                 445

Tyr Leu Ala Leu Ile Cys Gly Phe Gly Ala Pro Leu Leu Ala Arg Leu
    450                 455                 460

Leu Phe Tyr Leu Glu Arg Cys Asp Ala Gly Ala Phe Thr Gly Gly His
```

198

Gly Asp Ala Leu Lys Tyr Val Thr Gly Thr Phe Asp Ser Glu Ile Pro
                485   490   495

Cys Ser Leu Cys Glu Lys His Thr Arg Pro Val Cys Ala His Thr Thr
                500   505   510

Val His Arg Leu Arg Gln Arg Met Pro Arg Phe Gly Gln Ala Thr Arg
         515   520   525

Gln Pro Ile Gly Val Phe Gly Thr Met Asn Ser Gln Tyr Ser Asp Cys
     530   535   540

Asp Pro Leu Gly Asn Tyr Ala Pro Tyr Leu Ile Leu Arg Lys Pro Gly
545   550   555   560

Asp Gln Thr Glu Ala Ala Lys Ala Thr Met Gln Asp Thr Tyr Arg Ala
                565   570   575

Thr Leu Glu Arg Leu Phe Ile Asp Leu Glu Gln Glu Arg Leu Leu Asp
         580   585   590

Arg Gly Ala Pro Cys Ser Ser Glu Gly Leu Ser Ser Val Ile Val Asp
         595   600   605

His Pro Thr Phe Arg Arg Ile Leu Asp Thr Leu Arg Ala Arg Ile Glu
     610   615   620

Gln Thr Thr Thr Gln Phe Met Lys Val Leu Val Glu Thr Arg Asp Tyr
625   630   635   640

Lys Ile Arg Glu Gly Leu Ser Glu Ala Thr His Ser Met Ala Leu Thr
                645   650   655

Phe Asp Pro Tyr Ser Gly Ala Phe Cys Pro Ile Thr Asn Phe Leu Val
         660   665   670

Lys Arg Thr His Leu Ala Val Val Gln Asp Leu Ala Leu Ser Gln Cys
         675   680   685

His Cys Val Phe Tyr Gly Gln Gln Val Glu Gly Arg Asn Phe Arg Asn
     690   695   700

199

Gln Phe Gln Pro Val Leu Arg Arg Arg Phe Val Asp Leu Phe Asn Gly
705   710   715   720

Gly Phe Ile Ser Thr Arg Ser Ile Thr Val Thr Leu Ser Glu Gly Pro
                725   730   735

Val Ser Ala Pro Asn Pro Thr Leu Gly Gln Asp Ala Pro Ala Gly Arg
            740   745   750

Thr Phe Asp Gly Asp Leu Ala Arg Val Ser Val Glu Val Ile Arg Asp
            755   760   765

Ile Arg Val Lys Asn Arg Val Val Phe Ser Gly Asn Cys Thr Asn Leu
        770   775   780

Ser Glu Ala Ala Arg Ala Arg Leu Val Gly Leu Ala Ser Ala Tyr Gln
785   790   795   800

Arg Gln Glu Lys Arg Val Asp Met Leu His Gly Ala Leu Gly Phe Leu
            805   810   815

Leu Lys Gln Phe His Gly Leu Leu Phe Pro Arg Gly Met Pro Pro Asn
            820   825   830

Ser Lys Ser Pro Asn Pro Gln Trp Phe Trp Thr Leu Leu Gln Arg Asn
        835   840   845

Gln Met Pro Ala Asp Lys Leu Thr His Glu Glu Ile Thr Thr Ile Ala
    850   855   860

Ala Val Lys Arg Phe Thr Glu Glu Tyr Ala Ala Ile Asn Phe Ile Asn
865   870   875   880

Leu Pro Pro Thr Cys Ile Gly Glu Leu Ala Gln Phe Tyr Met Ala Asn
            885   890   895

Leu Ile Leu Lys Tyr Cys Asp His Ser Gln Tyr Leu Ile Asn Thr Leu
        900   905   910

Thr Ser Ile Ile Thr Gly Ala Arg Arg Pro Arg Asp Pro Ser Ser Val
        915   920   925

200

```
Leu His Trp Ile Arg Lys Asp Val Thr Ser Ala Ala Asp Ile Glu Thr
    930                 935                 940


Gln Ala Lys Ala Leu Leu Glu Lys Thr Glu Asn Leu Pro Glu Leu Trp
945                 950                 955                 960


Thr Thr Ala Phe Thr Ser Thr His Leu Val Arg Ala Ala Met Asn Gln
                965                 970                 975


Arg Pro Met Val Val Leu Gly Ile Ser Ile Ser Lys Tyr His Gly Ala
                980                 985                 990


Ala Gly Asn Asn Arg Val Phe Gln Ala Gly Asn Trp Ser Gly Leu Asn
            995                 1000                1005


Gly Gly  Lys Asn Val Cys Pro  Leu Phe Thr Phe Asp  Arg Thr Arg
    1010                1015                1020


Arg Phe  Ile Ile Ala Cys Pro  Arg Gly Gly Phe Ile  Cys Pro Val
    1025                1030                1035


Thr Gly  Pro Ser Ser Gly Asn  Arg Glu Thr Thr Leu  Ser Asp Gln
    1040                1045                1050


Val Arg  Gly Ile Ile Val Ser  Gly Gly Ala Met Val  Gln Leu Ala
    1055                1060                1065


Ile Tyr  Ala Thr Val Val Arg  Ala Val Gly Ala Arg  Ala Gln His
    1070                1075                1080


Met Ala  Phe Asp Asp Trp Leu  Ser Leu Thr Asp Asp  Glu Phe Leu
    1085                1090                1095


Ala Arg  Asp Leu Glu Glu Leu  His Asp Gln Ile Ile  Gln Thr Leu
    1100                1105                1110


Glu Thr  Pro Trp Thr Val Glu  Gly Ala Leu Glu Ala  Val Lys Ile
    1115                1120                1125


Leu Asp  Glu Lys Thr Thr Ala  Gly Asp Gly Glu Thr  Pro Thr Asn
    1130                1135                1140
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201

```
Leu Ala  Phe Asn Phe Asp Ser  Cys Glu Pro Ser His  Asp Thr Thr
    1145              1150              1155

Ser Asn  Val Leu Asn Ile Ser  Gly Ser Asn Ile Ser  Gly Ser Thr
    1160              1165              1170

Val Pro  Gly Leu Lys Arg Pro  Pro Glu Asp Asp Glu  Leu Phe Asp
    1175              1180              1185

Leu Ser  Gly Ile Pro Ile Lys  His Gly Asn Ile Thr  Met Glu Met
    1190              1195              1200

Ile


<210>  22
<211>  770
<212>  PRT
<213>  Varicella zoster

<400>  22

Met Glu Leu Asp Ile Asn Arg Thr Leu Leu Val Leu Leu Gly Gln Val
1               5                   10                  15

Tyr Thr Tyr Ile Phe Gln Val Glu Leu Leu Arg Arg Cys Asp Pro Arg
            20                  25                  30

Val Ala Cys Arg Phe Leu Tyr Arg Leu Ala Ala Asn Cys Leu Thr Val
        35                  40                  45

Arg Tyr Leu Leu Lys Leu Phe Leu Arg Gly Phe Asn Thr Gln Leu Lys
    50                  55                  60

Phe Gly Asn Thr Pro Thr Val Cys Ala Leu His Trp Ala Leu Cys Tyr
65                  70                  75                  80

Val Lys Gly Glu Gly Glu Arg Leu Phe Glu Leu Leu Gln His Phe Lys
                85                  90                  95

Thr Arg Phe Val Tyr Gly Glu Thr Lys Asp Ser Asn Cys Ile Lys Asp
            100                 105                 110

Tyr Phe Val Ser Ala Phe Asn Leu Lys Thr Cys Gln Tyr His His Glu
        115                 120                 125
```

202

Leu Ser Leu Thr Thr Tyr Gly Gly Tyr Val Ser Ser Glu Ile Gln Phe
    130   135   140

Leu His Asp Ile Glu Asn Phe Leu Lys Gln Leu Asn Tyr Cys Tyr Ile
145   150   155   160

Ile Thr Ser Ser Arg Glu Ala Leu Asn Thr Leu Glu Thr Val Thr Arg
                165   170   175

Phe Met Thr Asp Thr Ile Gly Ser Gly Leu Ile Pro Pro Val Glu Leu
            180   185   190

Phe Asp Pro Ala His Pro Cys Ala Ile Cys Phe Glu Glu Leu Cys Ile
            195   200   205

Thr Ala Asn Gln Gly Glu Thr Leu His Arg Arg Leu Leu Gly Cys Ile
    210   215   220

Cys Asp His Val Thr Lys Gln Val Arg Val Asn Val Asp Val Asp Asp
225   230   235   240

Ile Ile Arg Cys Leu Pro Tyr Ile Pro Asp Val Pro Asp Ile Lys Arg
                245   250   255

Gln Ser Ala Val Glu Ala Leu Arg Thr Leu Gln Thr Lys Thr Val Val
            260   265   270

Asn Pro Met Gly Ala Lys Asn Asp Thr Phe Asp Gln Thr Tyr Glu Ile
        275   280   285

Ala Ser Thr Met Leu Asp Ser Tyr Asn Val Phe Lys Pro Ala Pro Arg
    290   295   300

Cys Met Tyr Ala Ile Ser Glu Leu Lys Phe Trp Leu Thr Ser Asn Ser
305   310   315   320

Thr Glu Gly Pro Gln Arg Thr Leu Asp Val Phe Val Asp Asn Leu Asp
                325   330   335

Val Leu Asn Glu His Glu Lys His Ala Glu Leu Thr Ala Val Thr Val
        340   345   350

Glu Leu Ala Leu Phe Gly Lys Thr Pro Ile His Phe Asp Arg Ala Phe
    355   360   365

Ser Glu Glu Leu Gly Ser Leu Asp Ala Ile Asp Ser Ile Leu Val Gly
    370   375   380

Asn Arg Ser Ser Ser Pro Asp Ser Gln Ile Glu Ala Leu Ile Lys Ala
385   390   395   400

Cys Tyr Ala His His Leu Ser Ser Pro Leu Met Arg His Ile Ser Asn
                405   410   415

Pro Ser His Asp Asn Glu Ala Ala Leu Arg Gln Leu Leu Glu Arg Val
                420   425   430

Gly Cys Glu Asp Asp Leu Thr Lys Glu Ala Ser Asp Ser Ala Thr Ala
        435   440   445

Ser Glu Cys Asp Leu Asn Asp Asp Ser Ser Ile Thr Phe Ala Val His
    450   455   460

Gly Trp Glu Asn Leu Leu Ser Lys Ala Lys Ile Asp Ala Ala Glu Arg
465   470   475   480

Lys Arg Val Tyr Leu Glu His Leu Ser Lys Arg Ser Leu Thr Ser Leu
                485   490   495

Gly Arg Cys Ile Arg Glu Gln Arg Gln Glu Leu Glu Lys Thr Leu Arg
            500   505   510

Val Asn Val Tyr Gly Glu Ala Leu Leu Gln Thr Phe Val Ser Met Gln
        515   520   525

Asn Gly Phe Gly Ala Arg Asn Val Phe Leu Ala Lys Val Ser Gln Ala
    530   535   540

Gly Cys Ile Ile Asp Asn Arg Ile Gln Glu Ala Ala Phe Asp Ala His
545   550   555   560

Arg Phe Ile Arg Asn Thr Leu Val Arg His Thr Val Asp Ala Ala Met
                565   570   575

204

Leu Pro Ala Leu Thr His Lys Phe Phe Glu Leu Val Asn Gly Pro Leu
        580   585   590

Phe Asn His Asp Glu His Arg Phe Ala Gln Pro Pro Asn Thr Ala Leu
        595   600   605

Phe Phe Thr Val Glu Asn Val Gly Leu Phe Pro His Leu Lys Glu Glu
    610   615   620

Leu Ala Lys Phe Met Gly Gly Val Val Gly Ser Asn Trp Leu Leu Ser
625   630   635   640

Pro Phe Arg Gly Phe Tyr Cys Phe Ser Gly Val Glu Gly Val Thr Phe
            645   650   655

Ala Gln Arg Leu Ala Trp Lys Tyr Ile Arg Glu Leu Val Phe Ala Thr
        660   665   670

Thr Leu Phe Thr Ser Val Phe His Cys Gly Glu Val Arg Leu Cys Arg
        675   680   685

Val Asp Arg Leu Gly Lys Asp Pro Arg Gly Cys Thr Ser Gln Pro Lys
    690   695   700

Gly Ile Gly Ser Ser His Gly Pro Leu Asp Gly Ile Tyr Leu Thr Tyr
705   710   715   720

Glu Glu Thr Cys Pro Leu Val Ala Ile Ile Gln Ser Gly Glu Thr Gly
            725   730   735

Ile Asp Gln Asn Thr Val Val Ile Tyr Asp Ser Asp Val Phe Ser Leu
        740   745   750

Leu Tyr Thr Leu Met Gln Arg Leu Ala Pro Asp Ser Thr Asp Pro Ala
        755   760   765

Phe Ser
    770

<210>   23
<211>   868
<212>   PRT
<213>   Varicella zoster

205

<400> 23

Met Phe Val Thr Ala Val Val Ser Val Ser Pro Ser Ser Phe Tyr Glu
1   5   10   15

Ser Leu Gln Val Glu Pro Thr Gln Ser Glu Asp Ile Thr Arg Ser Ala
            20   25   30

His Leu Gly Asp Gly Asp Glu Ile Arg Glu Ala Ile His Lys Ser Gln
            35   40   45

Asp Ala Glu Thr Lys Pro Thr Phe Tyr Val Cys Pro Pro Pro Thr Gly
        50   55   60

Ser Thr Ile Val Arg Leu Glu Pro Thr Arg Thr Cys Pro Asp Tyr His
65   70   75   80

Leu Gly Lys Asn Phe Thr Glu Gly Ile Ala Val Val Tyr Lys Glu Asn
                85   90   95

Ile Ala Ala Tyr Lys Phe Lys Ala Thr Val Tyr Tyr Lys Asp Val Ile
                100   105   110

Val Ser Thr Ala Trp Ala Gly Ser Ser Tyr Thr Gln Ile Thr Asn Arg
            115   120   125

Tyr Ala Asp Arg Val Pro Ile Pro Val Ser Glu Ile Thr Asp Thr Ile
        130   135   140

Asp Lys Phe Gly Lys Cys Ser Ser Lys Ala Thr Tyr Val Arg Asn Asn
145   150   155   160

His Lys Val Glu Ala Phe Asn Glu Asp Lys Asn Pro Gln Asp Met Pro
                165   170   175

Leu Ile Ala Ser Lys Tyr Asn Ser Val Gly Ser Lys Ala Trp His Thr
                180   185   190

Thr Asn Asp Thr Tyr Met Val Ala Gly Thr Pro Gly Thr Tyr Arg Thr
            195   200   205

Gly Thr Ser Val Asn Cys Ile Ile Glu Glu Val Glu Ala Arg Ser Ile
    210   215   220

206

```
Phe Pro Tyr Asp Ser Phe Gly Leu Ser Thr Gly Asp Ile Ile Tyr Met
225                 230                 235                 240


Ser Pro Phe Phe Gly Leu Arg Asp Gly Ala Tyr Arg Glu His Ser Asn
                245                 250                 255


Tyr Ala Met Asp Arg Phe His Gln Phe Glu Gly Tyr Arg Gln Arg Asp
                260                 265                 270


Leu Asp Thr Arg Ala Leu Leu Glu Pro Ala Ala Arg Asn Phe Leu Val
                275                 280                 285


Thr Pro His Leu Thr Val Gly Trp Asn Trp Lys Pro Lys Arg Thr Glu
                290                 295                 300


Val Cys Ser Leu Val Lys Trp Arg Glu Val Glu Asp Val Val Arg Asp
305                 310                 315                 320


Glu Tyr Ala His Asn Phe Arg Phe Thr Met Lys Thr Leu Ser Thr Thr
                325                 330                 335


Phe Ile Ser Glu Thr Asn Glu Phe Asn Leu Asn Gln Ile His Leu Ser
                340                 345                 350


Gln Cys Val Lys Glu Glu Ala Arg Ala Ile Ile Asn Arg Ile Tyr Thr
                355                 360                 365


Thr Arg Tyr Asn Ser Ser His Val Arg Thr Gly Asp Ile Gln Thr Tyr
                370                 375                 380


Leu Ala Arg Gly Gly Phe Val Val Val Phe Gln Pro Leu Leu Ser Asn
385                 390                 395                 400


Ser Leu Ala Arg Leu Tyr Leu Gln Glu Leu Val Arg Glu Asn Thr Asn
                405                 410                 415


His Ser Pro Gln Lys His Pro Thr Arg Asn Thr Arg Ser Arg Arg Ser
                420                 425                 430


Val Pro Val Glu Leu Arg Ala Asn Arg Thr Ile Thr Thr Thr Ser Ser
                435                 440                 445
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207

Val Glu Phe Ala Met Leu Gln Phe Thr Tyr Asp His Ile Gln Glu His
    450   455   460

Val Asn Glu Met Leu Ala Arg Ile Ser Ser Ser Trp Cys Gln Leu Gln
465   470   475   480

Asn Arg Glu Arg Ala Leu Trp Ser Gly Leu Phe Pro Ile Asn Pro Ser
                485   490   495

Ala Leu Ala Ser Thr Ile Leu Asp Gln Arg Val Lys Ala Arg Ile Leu
                500   505   510

Gly Asp Val Ile Ser Val Ser Asn Cys Pro Glu Leu Gly Ser Asp Thr
                515   520   525

Arg Ile Ile Leu Gln Asn Ser Met Arg Val Ser Gly Ser Thr Thr Arg
    530   535   540

Cys Tyr Ser Arg Pro Leu Ile Ser Ile Val Ser Leu Asn Gly Ser Gly
545   550   555   560

Thr Val Glu Gly Gln Leu Gly Thr Asp Asn Glu Leu Ile Met Ser Arg
                565   570   575

Asp Leu Leu Glu Pro Cys Val Ala Asn His Lys Arg Tyr Phe Leu Phe
                580   585   590

Gly His His Tyr Val Tyr Tyr Glu Asp Tyr Arg Tyr Val Arg Glu Ile
        595   600   605

Ala Val His Asp Val Gly Met Ile Ser Thr Tyr Val Asp Leu Asn Leu
    610   615   620

Thr Leu Leu Lys Asp Arg Glu Phe Met Pro Leu Gln Val Tyr Thr Arg
625   630   635   640

Asp Glu Leu Arg Asp Thr Gly Leu Leu Asp Tyr Ser Glu Ile Gln Arg
                645   650   655

Arg Asn Gln Met His Ser Leu Arg Phe Tyr Asp Ile Asp Lys Val Val
                660   665   670

Gln Tyr Asp Ser Gly Thr Ala Ile Met Gln Gly Met Ala Gln Phe Phe

208

Gln Gly Leu Gly Thr Ala Gly Gln Ala Val Gly His Val Val Leu Gly
    690   695   700

Ala Thr Gly Ala Leu Leu Ser Thr Val His Gly Phe Thr Thr Phe Leu
705   710   715   720

Ser Asn Pro Phe Gly Ala Leu Ala Val Gly Leu Leu Val Leu Ala Gly
                    725   730   735

Leu Val Ala Ala Phe Phe Ala Tyr Arg Tyr Val Leu Lys Leu Lys Thr
                    740   745   750

Ser Pro Met Lys Ala Leu Tyr Pro Leu Thr Thr Lys Gly Leu Lys Gln
                    755   760   765

Leu Pro Glu Gly Met Asp Pro Phe Ala Glu Lys Pro Asn Ala Thr Asp
                    770   775   780

Thr Pro Ile Glu Glu Ile Gly Asp Ser Gln Asn Thr Glu Pro Ser Val
785   790   795   800

Asn Ser Gly Phe Asp Pro Asp Lys Phe Arg Glu Ala Gln Glu Met Ile
                    805   810   815

Lys Tyr Met Thr Leu Val Ser Ala Ala Glu Arg Gln Glu Ser Lys Ala
                    820   825   830

Arg Lys Lys Asn Lys Thr Ser Ala Leu Leu Thr Ser Arg Leu Thr Gly
                    835   840   845

Leu Ala Leu Arg Asn Arg Arg Gly Tyr Ser Arg Val Arg Thr Glu Asn
    850   855   860

Val Thr Gly Val
865

<210> 24
<211> 143
<212> PRT
<213> Varicella zoster

<400> 24

Met Glu Ser Ser Asn Ile Asn Ala Leu Gln Gln Pro Ser Ser Ile Ala
1   5   10   15

His His Pro Ser Lys Gln Cys Ala Ser Ser Leu Asn Glu Thr Val Lys
            20   25   30

Asp Ser Pro Pro Ala Ile Tyr Glu Asp Arg Leu Glu His Thr Pro Val
            35   40   45

Gln Leu Pro Arg Asp Gly Thr Pro Arg Asp Val Cys Ser Val Gly Gln
        50   55   60

Leu Thr Cys Arg Ala Cys Ala Thr Lys Pro Phe Arg Leu Asn Arg Asp
65   70   75   80

Ser Gln Tyr Asp Tyr Leu Asn Thr Cys Pro Gly Gly Arg His Ile Ser
            85   90   95

Leu Ala Leu Glu Ile Ile Thr Gly Arg Trp Val Cys Ile Pro Arg Val
            100   105   110

Phe Pro Asp Thr Pro Glu Glu Lys Trp Met Ala Pro Tyr Ile Ile Pro
            115   120   125

Asp Arg Glu Gln Pro Ser Ser Gly Asp Glu Asp Ser Asp Thr Asp
        130   135   140

<210>   25
<211>   341
<212>   PRT
<213>   Varicella zoster

<400>   25

Met Ser Thr Asp Lys Thr Asp Val Lys Met Gly Val Leu Arg Ile Tyr
1   5   10   15

Leu Asp Gly Ala Tyr Gly Ile Gly Lys Thr Thr Ala Ala Glu Glu Phe
            20   25   30

Leu His His Phe Ala Ile Thr Pro Asn Arg Ile Leu Leu Ile Gly Glu
            35   40   45

Pro Leu Ser Tyr Trp Arg Asn Leu Ala Gly Glu Asp Ala Ile Cys Gly

210

Ile Tyr Gly Thr Gln Thr Arg Arg Leu Asn Gly Asp Val Ser Pro Glu
65   70   75   80

Asp Ala Gln Arg Leu Thr Ala His Phe Gln Ser Leu Phe Cys Ser Pro
                85   90   95

His Ala Ile Met His Ala Lys Ile Ser Ala Leu Met Asp Thr Ser Thr
            100   105   110

Ser Asp Leu Val Gln Val Asn Lys Glu Pro Tyr Lys Ile Met Leu Ser
            115   120   125

Asp Arg His Pro Ile Ala Ser Thr Ile Cys Phe Pro Leu Ser Arg Tyr
        130   135   140

Leu Val Gly Asp Met Ser Pro Ala Ala Leu Pro Gly Leu Leu Phe Thr
145   150   155   160

Leu Pro Ala Glu Pro Pro Gly Thr Asn Leu Val Val Cys Thr Val Ser
                165   170   175

Leu Pro Ser His Leu Ser Arg Val Ser Lys Arg Ala Arg Pro Gly Glu
            180   185   190

Thr Val Asn Leu Pro Phe Val Met Val Leu Arg Asn Val Tyr Ile Met
        195   200   205

Leu Ile Asn Thr Ile Ile Phe Leu Lys Thr Asn Asn Trp His Ala Gly
        210   215   220

Trp Asn Thr Leu Ser Phe Cys Asn Asp Val Phe Lys Gln Lys Leu Gln
225   230   235   240

Lys Ser Glu Cys Ile Lys Leu Arg Glu Val Pro Gly Ile Glu Asp Thr
                245   250   255

Leu Phe Ala Val Leu Lys Leu Pro Glu Leu Cys Gly Glu Phe Gly Asn
            260   265   270

Ile Leu Pro Leu Trp Ala Trp Gly Met Glu Thr Leu Ser Asn Cys Ser
        275   280   285

211

```
Arg Ser Met Ser Pro Phe Val Leu Ser Leu Glu Gln Thr Pro Gln His
    290                 295                 300

Ala Ala Gln Glu Leu Lys Thr Leu Leu Pro Gln Met Thr Pro Ala Asn
305                 310                 315                 320

Met Ser Ser Gly Ala Trp Asn Ile Leu Lys Glu Leu Val Asn Ala Val
                325                 330                 335

Gln Asp Asn Thr Ser
            340


<210>  26
<211>  841
<212>  PRT
<213>  Varicella zoster

<400>  26

Met Phe Ala Leu Val Leu Ala Val Val Ile Leu Pro Leu Trp Thr Thr
1               5                 10                  15

Ala Asn Lys Ser Tyr Val Thr Pro Thr Pro Ala Thr Arg Ser Ile Gly
            20                  25                  30

His Met Ser Ala Leu Leu Arg Glu Tyr Ser Asp Arg Asn Met Ser Leu
            35                  40                  45

Lys Leu Glu Ala Phe Tyr Pro Thr Gly Phe Asp Glu Glu Leu Ile Lys
    50                  55                  60

Ser Leu His Trp Gly Asn Asp Arg Lys His Val Phe Leu Val Ile Val
65                  70                  75                  80

Lys Val Asn Pro Thr Thr His Glu Gly Asp Val Gly Leu Val Ile Phe
                85                  90                  95

Pro Lys Tyr Leu Leu Ser Pro Tyr His Phe Lys Ala Glu His Arg Ala
            100                 105                 110

Pro Phe Pro Ala Gly Arg Phe Gly Phe Leu Ser His Pro Val Thr Pro
        115                 120                 125
```

Asp Val Ser Phe Phe Asp Ser Ser Phe Ala Pro Tyr Leu Thr Thr Gln
    130   135   140

His Leu Val Ala Phe Thr Thr Phe Pro Pro Asn Pro Leu Val Trp His
145   150   155   160

Leu Glu Arg Ala Glu Thr Ala Ala Thr Ala Glu Arg Pro Phe Gly Val
                165   170   175

Ser Leu Leu Pro Ala Arg Pro Thr Val Pro Lys Asn Thr Ile Leu Glu
                180   185   190

His Lys Ala His Phe Ala Thr Trp Asp Ala Leu Ala Arg His Thr Phe
                195   200   205

Phe Ser Ala Glu Ala Ile Ile Thr Asn Ser Thr Leu Arg Ile His Val
    210   215   220

Pro Leu Phe Gly Ser Val Trp Pro Ile Arg Tyr Trp Ala Thr Gly Ser
225   230   235   240

Val Leu Leu Thr Ser Asp Ser Gly Arg Val Glu Val Asn Ile Gly Val
                245   250   255

Gly Phe Met Ser Ser Leu Ile Ser Leu Ser Ser Gly Pro Pro Ile Glu
                260   265   270

Leu Ile Val Val Pro His Thr Val Lys Leu Asn Ala Val Thr Ser Asp
    275   280   285

Thr Thr Trp Phe Gln Leu Asn Pro Pro Gly Pro Asp Pro Gly Pro Ser
    290   295   300

Tyr Arg Val Tyr Leu Leu Gly Arg Gly Leu Asp Met Asn Phe Ser Lys
305   310   315   320

His Ala Thr Val Asp Ile Cys Ala Tyr Pro Glu Glu Ser Leu Asp Tyr
                325   330   335

Arg Tyr His Leu Ser Met Ala His Thr Glu Ala Leu Arg Met Thr Thr
                340   345   350

Lys Ala Asp Gln His Asp Ile Asn Glu Glu Ser Tyr Tyr His Ile Ala

213

Ala Arg Ile Ala Thr Ser Ile Phe Ala Leu Ser Glu Met Gly Arg Thr
    370   375   380

Thr Glu Tyr Phe Leu Leu Asp Glu Ile Val Asp Val Gln Tyr Gln Leu
385   390   395   400

Lys Phe Leu Asn Tyr Ile Leu Met Arg Ile Gly Ala Gly Ala His Pro
             405   410   415

Asn Thr Ile Ser Gly Thr Ser Asp Leu Ile Phe Ala Asp Pro Ser Gln
             420   425   430

Leu His Asp Glu Leu Ser Leu Leu Phe Gly Gln Val Lys Pro Ala Asn
         435   440   445

Val Asp Tyr Phe Ile Ser Tyr Asp Glu Ala Arg Asp Gln Leu Lys Thr
    450   455   460

Ala Tyr Ala Leu Ser Arg Gly Gln Asp His Val Asn Ala Leu Ser Leu
465   470   475   480

Ala Arg Arg Val Ile Met Ser Ile Tyr Lys Gly Leu Leu Val Lys Gln
             485   490   495

Asn Leu Asn Ala Thr Glu Arg Gln Ala Leu Phe Phe Ala Ser Met Ile
             500   505   510

Leu Leu Asn Phe Arg Glu Gly Leu Glu Asn Ser Ser Arg Val Leu Asp
         515   520   525

Gly Arg Thr Thr Leu Leu Leu Met Thr Ser Met Cys Thr Ala Ala His
    530   535   540

Ala Thr Gln Ala Ala Leu Asn Ile Gln Glu Gly Leu Ala Tyr Leu Asn
545   550   555   560

Pro Ser Lys His Met Phe Thr Ile Pro Asn Val Tyr Ser Pro Cys Met
             565   570   575

Gly Ser Leu Arg Thr Asp Leu Thr Glu Glu Ile His Val Met Asn Leu
             580   585   590

214

Leu Ser Ala Ile Pro Thr Arg Pro Gly Leu Asn Glu Val Leu His Thr
      595   600   605

Gln Leu Asp Glu Ser Glu Ile Phe Asp Ala Ala Phe Lys Thr Met Met
      610   615   620

Ile Phe Thr Thr Trp Thr Ala Lys Asp Leu His Ile Leu His Thr His
625   630   635   640

Val Pro Glu Val Phe Thr Cys Gln Asp Ala Ala Ala Arg Asn Gly Glu
                  645   650   655

Tyr Val Leu Ile Leu Pro Ala Val Gln Gly His Ser Tyr Val Ile Thr
                  660   665   670

Arg Asn Lys Pro Gln Arg Gly Leu Val Tyr Ser Leu Ala Asp Val Asp
      675   680   685

Val Tyr Asn Pro Ile Ser Val Val Tyr Leu Ser Arg Asp Thr Cys Val
      690   695   700

Ser Glu His Gly Val Ile Glu Thr Val Ala Leu Pro His Pro Asp Asn
705   710   715   720

Leu Lys Glu Cys Leu Tyr Cys Gly Ser Val Phe Leu Arg Tyr Leu Thr
                  725   730   735

Thr Gly Ala Ile Met Asp Ile Ile Ile Asp Ser Lys Asp Thr Glu
                  740   745   750

Arg Gln Leu Ala Ala Met Gly Asn Ser Thr Ile Pro Pro Phe Asn Pro
      755   760   765

Asp Met His Gly Asp Asp Ser Lys Ala Val Leu Leu Phe Pro Asn Gly
      770   775   780

Thr Val Val Thr Leu Leu Gly Phe Glu Arg Arg Gln Ala Ile Arg Met
785   790   795   800

Ser Gly Gln Tyr Leu Gly Ala Ser Leu Gly Gly Ala Phe Leu Ala Val
                  805   810   815

215

Val Gly Phe Gly Ile Ile Gly Trp Met Leu Cys Gly Asn Ser Arg Leu
          820   825   830

Arg Glu Tyr Asn Lys Ile Pro Leu Thr
          835   840

<210> 27
<211> 240
<212> PRT
<213> Varicella zoster

<400> 27

Met Asn Pro Pro Gln Ala Arg Val Ser Glu Gln Thr Lys Asp Leu Leu
1   5   10   15

Ser Val Met Val Asn Gln His Pro Glu Glu Asp Ala Lys Val Cys Lys
          20   25   30

Ser Ser Asp Asn Ser Pro Leu Tyr Asn Thr Met Val Met Leu Ser Tyr
          35   40   45

Gly Gly Asp Thr Asp Leu Leu Leu Ser Ser Ala Cys Thr Arg Thr Ser
     50   55   60

Thr Val Asn Arg Ser Ala Phe Thr Gln His Ser Val Phe Tyr Ile Ile
65   70   75   80

Ser Thr Val Leu Ile Gln Pro Ile Cys Cys Ile Phe Phe Phe Phe Tyr
               85   90   95

Tyr Lys Ala Thr Arg Cys Met Leu Leu Phe Thr Ala Gly Leu Leu Leu
          100   105   110

Thr Ile Leu His His Phe Arg Leu Ile Ile Met Leu Leu Cys Val Tyr
          115   120   125

Arg Asn Ile Arg Ser Asp Leu Leu Pro Leu Ser Thr Ser Gln Gln Leu
     130   135   140

Leu Leu Gly Ile Ile Val Val Thr Arg Thr Met Leu Phe Cys Ile Thr
145   150   155   160

Ala Tyr Tyr Thr Leu Phe Ile Asp Thr Arg Val Phe Phe Leu Ile Thr

216

Gly His Leu Gln Ser Glu Val Ile Phe Pro Asp Ser Val Ser Lys Ile
            180   185   190

Leu Pro Val Ser Trp Gly Pro Ser Pro Ala Val Leu Leu Val Met Ala
            195   200   205

Ala Val Ile Tyr Ala Met Asp Cys Leu Val Asp Thr Val Ser Phe Ile
            210   215   220

Gly Pro Arg Val Trp Val Arg Val Met Leu Lys Thr Ser Ile Ser Phe
225   230   235   240

<210> 28
<211> 1396
<212> PRT
<213> Varicella zoster

<400> 28

Met Thr Thr Val Ser Cys Pro Ala Asn Val Ile Thr Thr Thr Glu Ser
1   5   10   15

Asp Arg Ile Ala Gly Leu Phe Asn Ile Pro Ala Gly Ile Ile Pro Thr
            20   25   30

Gly Asn Val Leu Ser Thr Ile Glu Val Cys Ala His Arg Cys Ile Phe
            35   40   45

Asp Phe Phe Lys Gln Ile Arg Ser Asp Asp Asn Ser Leu Tyr Ser Ala
            50   55   60

Gln Phe Asp Ile Leu Leu Gly Thr Tyr Cys Asn Thr Leu Asn Phe Val
65   70   75   80

Arg Phe Leu Glu Leu Gly Leu Ser Val Ala Cys Ile Cys Thr Lys Phe
            85   90   95

Pro Glu Leu Ala Tyr Val Arg Asp Gly Val Ile Gln Phe Glu Val Gln
            100   105   110

Gln Pro Met Ile Ala Arg Asp Gly Pro His Pro Val Asp Gln Pro Val
            115   120   125

217

```
His Asn Tyr Met Val Lys Arg Ile His Lys Arg Ser Leu Ser Ala Ala
    130             135         140

Phe Ala Ile Ala Ser Glu Ala Leu Ser Leu Leu Ser Asn Thr Tyr Val
145             150             155             160

Asp Gly Thr Glu Ile Asp Ser Ser Leu Arg Ile Arg Ala Ile Gln Gln
                165             170             175

Met Ala Arg Asn Leu Arg Thr Val Leu Asp Ser Phe Glu Arg Gly Thr
            180             185             190

Ala Asp Gln Leu Leu Gly Val Leu Leu Glu Lys Ala Pro Pro Leu Ser
            195             200             205

Leu Leu Ser Pro Ile Asn Lys Phe Gln Pro Glu Gly His Leu Asn Arg
    210             215             220

Val Ala Arg Ala Ala Leu Leu Ser Asp Leu Lys Arg Arg Val Cys Ala
225             230             235             240

Asp Met Phe Phe Met Thr Arg His Ala Arg Glu Pro Arg Leu Ile Ser
            245             250             255

Ala Tyr Leu Ser Asp Met Val Ser Cys Thr Gln Pro Ser Val Met Val
            260             265             270

Ser Arg Ile Thr His Thr Asn Thr Arg Gly Arg Gln Val Asp Gly Val
    275             280             285

Leu Val Thr Thr Ala Thr Leu Lys Arg Gln Leu Leu Gln Gly Ile Leu
    290             295             300

Gln Ile Asp Asp Thr Ala Ala Asp Val Pro Val Thr Tyr Gly Glu Met
305             310             315             320

Val Leu Gln Gly Thr Asn Leu Val Thr Ala Leu Val Met Gly Lys Ala
            325             330             335

Val Arg Gly Met Asp Asp Val Ala Arg His Leu Leu Asp Ile Thr Asp
            340             345             350
```

218

Pro Asn Thr Leu Asn Ile Pro Ser Ile Pro Pro Gln Ser Asn Ser Asp
    355   360   365

Ser Thr Thr Ala Gly Leu Pro Val Asn Ala Arg Val Pro Ala Asp Leu
    370   375   380

Val Ile Val Gly Asp Lys Leu Val Phe Leu Glu Ala Leu Glu Arg Arg
385   390   395   400

Val Tyr Gln Ala Thr Arg Val Ala Tyr Pro Leu Ile Gly Asn Ile Asp
                405   410   415

Ile Thr Phe Ile Met Pro Met Gly Val Phe Gln Ala Asn Ser Met Asp
                420   425   430

Arg Tyr Thr Arg His Ala Gly Asp Phe Ser Thr Val Ser Glu Gln Asp
                435   440   445

Pro Arg Gln Phe Pro Pro Gln Gly Ile Phe Phe Tyr Asn Lys Asp Gly
    450   455   460

Ile Leu Thr Gln Leu Thr Leu Arg Asp Ala Met Gly Thr Ile Cys His
465   470   475   480

Ser Ser Leu Leu Asp Val Glu Ala Thr Leu Val Ala Leu Arg Gln Gln
                485   490   495

His Leu Asp Arg Gln Cys Tyr Phe Gly Val Tyr Val Ala Glu Gly Thr
                500   505   510

Glu Asp Thr Leu Asp Val Gln Met Gly Arg Phe Met Glu Thr Trp Ala
                515   520   525

Asp Met Met Pro His His Pro His Trp Val Asn Glu His Leu Thr Ile
    530   535   540

Leu Gln Phe Ile Ala Pro Ser Asn Pro Arg Leu Arg Phe Glu Leu Asn
545   550   555   560

Pro Ala Phe Asp Phe Phe Val Ala Pro Gly Asp Val Asp Leu Pro Gly
                565   570   575

Pro Gln Arg Pro Pro Glu Ala Met Pro Thr Val Asn Ala Thr Leu Arg

219

Ile Ile Asn Gly Asn Ile Pro Val Pro Leu Cys Pro Ile Ser Phe Arg
    595   600   605

Asp Cys Arg Gly Thr Gln Leu Gly Leu Gly Arg His Thr Met Thr Pro
610   615   620

Ala Thr Ile Lys Ala Val Lys Asp Thr Phe Glu Asp Arg Ala Tyr Pro
625   630   635   640

Thr Ile Phe Tyr Met Leu Glu Ala Val Ile His Gly Asn Glu Arg Asn
            645   650   655

Phe Cys Ala Leu Leu Arg Leu Leu Thr Gln Cys Ile Arg Gly Tyr Trp
            660   665   670

Glu Gln Ser His Arg Val Ala Phe Val Asn Asn Phe His Met Leu Met
        675   680   685

Tyr Ile Thr Thr Tyr Leu Gly Asn Gly Glu Leu Pro Glu Val Cys Ile
    690   695   700

Asn Ile Tyr Arg Asp Leu Leu Gln His Val Arg Ala Leu Arg Gln Thr
705   710   715   720

Ile Thr Asp Phe Thr Ile Gln Gly Glu Gly His Asn Gly Glu Thr Ser
            725   730   735

Glu Ala Leu Asn Asn Ile Leu Thr Asp Asp Thr Phe Ile Ala Pro Ile
            740   745   750

Leu Trp Asp Cys Asp Ala Leu Ile Tyr Arg Asp Glu Ala Ala Arg Asp
            755   760   765

Arg Leu Pro Ala Ile Arg Val Ser Gly Arg Asn Gly Tyr Gln Ala Leu
    770   775   780

His Phe Val Asp Met Ala Gly His Asn Phe Gln Arg Arg Asp Asn Val
785   790   795   800

Leu Ile His Gly Arg Pro Val Arg Gly Asp Thr Gly Gln Gly Ile Pro
            805   810   815

220

Ile Thr Pro His His Asp Arg Glu Trp Gly Ile Leu Ser Lys Ile Tyr
    820   825   830

Tyr Tyr Ile Val Ile Pro Ala Phe Ser Arg Gly Ser Cys Cys Thr Met
    835   840   845

Gly Val Arg Tyr Asp Arg Leu Tyr Pro Ala Leu Gln Ala Val Ile Val
    850   855   860

Pro Glu Ile Pro Ala Asp Glu Glu Ala Pro Thr Thr Pro Glu Asp Pro
865   870   875   880

Arg His Pro Leu His Ala His Gln Leu Val Pro Asn Ser Leu Asn Val
          885   890   895

Tyr Phe His Asn Ala His Leu Thr Val Asp Gly Asp Ala Leu Leu Thr
        900   905   910

Leu Gln Glu Leu Met Gly Asp Met Ala Glu Arg Thr Thr Ala Ile Leu
      915   920   925

Val Ser Ser Ala Pro Asp Ala Gly Ala Ala Thr Ala Thr Thr Arg Asn
    930   935   940

Met Arg Ile Tyr Asp Gly Ala Leu Tyr His Gly Leu Ile Met Met Ala
945   950   955   960

Tyr Gln Ala Tyr Asp Glu Thr Ile Ala Thr Gly Thr Phe Phe Tyr Pro
        965   970   975

Val Pro Val Asn Pro Leu Phe Ala Cys Pro Glu His Leu Ala Ser Leu
        980   985   990

Arg Gly Met Thr Asn Ala Arg Arg Val Leu Ala Lys Met Val Pro Pro
      995   1000   1005

Ile Pro Pro Phe Leu Gly Ala Asn His His Ala Thr Ile Arg Gln
    1010   1015   1020

Pro Val Ala Tyr His Val Thr His Ser Lys Ser Asp Phe Asn Thr
    1025   1030   1035

Leu Thr Tyr Ser Leu Leu Gly Gly Tyr Phe Lys Phe Thr Pro Ile
    1040   1045   1050

Ser Leu Thr His Gln Leu Arg Thr Gly Phe His Pro Gly Ile Ala
    1055   1060   1065

Phe Thr Val Val Arg Gln Asp Arg Phe Ala Thr Glu Gln Leu Leu
    1070   1075   1080

Tyr Ala Glu Arg Ala Ser Glu Ser Tyr Phe Val Gly Gln Ile Gln
    1085   1090   1095

Val His His His Asp Ala Ile Gly Gly Val Asn Phe Thr Leu Thr
    1100   1105   1110

Gln Pro Arg Ala His Val Asp Leu Gly Val Gly Tyr Thr Ala Val
    1115   1120   1125

Cys Ala Thr Ala Ala Leu Arg Cys Pro Leu Thr Asp Met Gly Asn
    1130   1135   1140

Thr Ala Gln Asn Leu Phe Phe Ser Arg Gly Gly Val Pro Met Leu
    1145   1150   1155

His Asp Asn Val Thr Glu Ser Leu Arg Arg Ile Thr Ala Ser Gly
    1160   1165   1170

Gly Arg Leu Asn Pro Thr Glu Pro Leu Pro Ile Phe Gly Gly Leu
    1175   1180   1185

Arg Pro Ala Thr Ser Ala Gly Ile Ala Arg Gly Gln Ala Ser Val
    1190   1195   1200

Cys Glu Phe Val Ala Met Pro Val Ser Thr Asp Leu Gln Tyr Phe
    1205   1210   1215

Arg Thr Ala Cys Asn Pro Arg Gly Arg Ala Ser Gly Met Leu Tyr
    1220   1225   1230

Met Gly Asp Arg Asp Ala Asp Ile Glu Ala Ile Met Phe Asp His
    1235   1240   1245

222

```
Thr Gln  Ser Asp Val Ala Tyr  Thr Asp Arg Ala Thr  Leu Asn Pro
    1250            1255             1260


Trp Ala  Ser Gln Lys His Ser  Tyr Gly Asp Arg Leu  Tyr Asn Gly
    1265            1270             1275


Thr Tyr  Asn Leu Thr Gly Ala  Ser Pro Ile Tyr Ser  Pro Cys Phe
    1280            1285             1290


Lys Phe  Phe Thr Pro Ala Glu  Val Asn Thr Asn Cys  Asn Thr Leu
    1295            1300             1305


Asp Arg  Leu Leu Met Glu Ala  Lys Ala Val Ala Ser  Gln Ser Ser
    1310            1315             1320


Thr Asp  Thr Glu Tyr Gln Phe  Lys Arg Pro Pro Gly  Ser Thr Glu
    1325            1330             1335


Met Thr  Gln Asp Pro Cys Gly  Leu Phe Gln Glu Ala  Tyr Pro Pro
    1340            1345             1350


Leu Cys  Ser Ser Asp Ala Ala  Met Leu Arg Thr Ala  His Ala Gly
    1355            1360             1365


Glu Thr  Gly Ala Asp Glu Val  His Leu Ala Gln Tyr  Leu Ile Arg
    1370            1375             1380


Asp Ala  Ser Pro Leu Arg Gly  Cys Leu Pro Leu Pro  Arg
    1385            1390             1395



<210>  29
<211>  316
<212>  PRT
<213>  Varicella zoster

<400>  29

Met Ala Met Pro Phe Glu Ile Glu Val Leu Leu Pro Gly Glu Leu Ser
1               5                   10                  15


Pro Ala Glu Thr Ser Ala Leu Gln Lys Cys Glu Gly Lys Ile Ile Thr
            20                  25                  30


Phe Ser Thr Leu Arg His Arg Ala Ser Leu Val Asp Ile Ala Leu Ser
        35                  40                  45
```

223

```
Ser Tyr Tyr Ile Asn Gly Ala Pro Pro Asp Thr Leu Ser Leu Leu Glu
    50              55              60

Ala Tyr Arg Met Arg Phe Ala Ala Val Ile Thr Arg Val Ile Pro Gly
65              70              75              80

Lys Leu Leu Ala His Ala Ile Gly Val Gly Thr Pro Thr Pro Gly Leu
                85              90              95

Phe Ile Gln Asn Thr Ser Pro Val Asp Leu Cys Asn Gly Asp Tyr Ile
            100             105             110

Cys Leu Leu Pro Pro Val Phe Gly Ser Ala Asp Ser Ile Arg Leu Asp
            115             120             125

Ser Val Gly Leu Glu Ile Val Phe Pro Leu Thr Ile Pro Gln Thr Leu
    130             135             140

Met Arg Glu Ile Ile Ala Lys Val Val Ala Arg Ala Val Glu Arg Thr
145             150             155             160

Ala Ala Gly Ala Gln Ile Leu Pro His Glu Val Leu Arg Gly Ala Asp
                165             170             175

Val Ile Cys Tyr Asn Gly Arg Arg Tyr Glu Leu Glu Thr Asn Leu Gln
            180             185             190

His Arg Asp Gly Ser Asp Ala Ala Ile Arg Thr Leu Val Leu Asn Leu
            195             200             205

Met Phe Ser Ile Asn Glu Gly Cys Leu Leu Leu Leu Ala Leu Ile Pro
    210             215             220

Thr Leu Leu Val Gln Gly Ala His Asp Gly Tyr Val Asn Leu Leu Ile
225             230             235             240

Gln Thr Ala Asn Cys Val Arg Glu Thr Gly Gln Leu Ile Asn Ile Pro
            245             250             255

Pro Met Pro Arg Ile Gln Asp Gly His Arg Arg Phe Pro Ile Tyr Glu
            260             265             270
```

224

Thr Ile Ser Ser Trp Ile Ser Thr Ser Ser Arg Leu Gly Asp Thr Leu
    275   280   285

Gly Thr Arg Ala Ile Leu Arg Val Cys Val Phe Asp Gly Pro Ser Thr
    290   295   300

Val His Pro Gly Asp Arg Thr Ala Val Ile Gln Val
305   310   315

<210> 30
<211> 676
<212> PRT
<213> Varicella zoster

<400> 30

Met Glu Ala His Leu Ala Asn Glu Thr Lys His Ala Leu Trp His Asn
1   5   10   15

Asp His Thr Lys Gly Leu Leu His Val Val Ile Pro Asn Ala Gly Leu
            20   25   30

Ile Ala Ala Gly Ile Asp Pro Ala Leu Leu Ile Leu Lys Lys Pro Gly
            35   40   45

Gln Arg Phe Lys Val Glu Val Gln Thr Arg Tyr His Ala Thr Gly Gln
    50   55   60

Cys Glu Pro Trp Cys Gln Val Phe Ala Ala Tyr Ile Pro Asp Asn Ala
65   70   75   80

Leu Thr Asn Leu Leu Ile Pro Lys Thr Glu Pro Phe Val Ser His Val
            85   90   95

Phe Ser Ala Thr His Asn Ser Gly Gly Leu Ile Leu Ser Leu Pro Val
            100   105   110

Tyr Leu Ser Pro Gly Leu Phe Phe Asp Ala Phe Asn Val Val Ala Ile
    115   120   125

Arg Ile Asn Thr Gly Asn Arg Lys His Arg Asp Ile Cys Ile Met Tyr
    130   135   140

Ala Glu Leu Ile Pro Asn Gly Thr Arg Tyr Phe Ala Asp Gly Gln Arg

225

```
    145                    150                    155                    160


Val Leu Leu Leu Cys Lys Gln Leu Ile Ala Tyr Ile Arg Cys Thr Pro
            165                    170                    175


Arg Leu Ala Ser Ser Ile Lys Ile Tyr Ala Glu His Met Val Ala Ala
            180                    185                    190


Met Gly Glu Ser His Thr Ser Asn Gly Asp Asn Ile Gly Pro Val Ser
            195                    200                    205


Ser Ile Ile Asp Leu Asp Arg Gln Leu Thr Ser Gly Gly Ile Asp Asp
    210                    215                    220


Ser Pro Ala Glu Thr Arg Ile Gln Glu Asn Asn Arg Asp Val Leu Glu
225                    230                    235                    240


Leu Ile Lys Arg Ala Val Asn Ile Val Asn Ser Arg His Pro Val Arg
            245                    250                    255


Pro Ser Ser Ser Arg Val Ala Ser Gly Leu Leu Gln Ser Ala Lys Gly
            260                    265                    270


His Gly Ala Gln Thr Ser Asn Thr Asp Pro Ile Asn Asn Gly Ser Phe
            275                    280                    285


Asp Gly Val Leu Glu Pro Pro Gly Gln Gly Arg Phe Thr Gly Lys Lys
            290                    295                    300


Asn Asn Ser Ser Ala Ser Ile Pro Pro Leu Gln Asp Val Leu Leu Phe
305                    310                    315                    320


Thr Pro Ala Ser Thr Glu Pro Gln Ser Leu Met Glu Trp Phe Asp Ile
            325                    330                    335


Cys Tyr Ala Gln Leu Val Ser Gly Asp Thr Pro Ala Asp Phe Trp Lys
            340                    345                    350


Arg Arg Pro Leu Ser Ile Val Pro Arg His Tyr Ala Glu Ser Pro Ser
            355                    360                    365


Pro Leu Ile Val Val Ser Tyr Asn Gly Ser Ser Ala Trp Gly Gly Arg
            370                    375                    380


                                226
```

Ile Thr Gly Ser Pro Ile Leu Tyr His Ser Ala Gln Ala Ile Ile Asp
385   390   395   400

Ala Ala Cys Ile Asn Ala Arg Val Asp Asn Pro Gln Ser Leu His Val
                405   410   415

Thr Ala Arg Gln Glu Leu Val Ala Arg Leu Pro Phe Leu Ala Asn Val
            420   425   430

Leu Asn Asn Gln Thr Pro Leu Pro Ala Phe Lys Pro Gly Ala Glu Met
            435   440   445

Phe Leu Asn Gln Val Phe Lys Gln Ala Cys Val Thr Ser Leu Thr Gln
    450   455   460

Gly Leu Ile Thr Glu Leu Gln Thr Asn Pro Thr Leu Gln Gln Leu Met
465   470   475   480

Glu Tyr Asp Ile Ala Asp Ser Ser Gln Thr Val Ile Asp Glu Ile Val
            485   490   495

Ala Arg Thr Pro Asp Leu Ile Gln Thr Ile Val Ser Val Leu Thr Glu
            500   505   510

Met Ser Met Asp Ala Phe Tyr Asn Ser Ser Leu Met Tyr Ala Val Leu
            515   520   525

Ala Tyr Leu Ser Ser Val Tyr Thr Arg Pro Gln Gly Gly Gly Tyr Ile
    530   535   540

Pro Tyr Leu His Ala Ser Phe Pro Cys Trp Leu Gly Asn Arg Ser Ile
545   550   555   560

Tyr Leu Phe Asp Tyr Tyr Asn Ser Gly Gly Glu Ile Leu Lys Leu Ser
            565   570   575

Lys Val Pro Val Pro Val Ala Leu Glu Lys Val Gly Ile Gly Asn Ser
            580   585   590

Thr Gln Leu Arg Gly Lys Phe Ile Arg Ser Ala Asp Ile Val Asp Ile
    595   600   605

227

```
Gly Ile Cys Ser Lys Tyr Leu Pro Gly Gln Cys Tyr Ala Tyr Ile Cys
    610                 615                 620


Leu Gly Phe Asn Gln Gln Leu Gln Ser Ile Leu Val Leu Pro Gly Gly
625                 630                 635                 640


Phe Ala Ala Cys Phe Cys Ile Thr Asp Thr Leu Gln Ala Ala Leu Pro
                645                 650                 655


Ala Ser Leu Ile Gly Pro Ile Leu Asp Arg Phe Cys Phe Ser Ile Pro
                660                 665                 670


Asn Pro His Lys
            675


<210>   31
<211>   363
<212>   PRT
<213>   Varicella zoster


<400>   31

Met Glu Leu Gln Arg Ile Phe Pro Leu Tyr Thr Ala Thr Gly Ala Ala
1               5                   10                  15


Arg Lys Leu Thr Pro Glu Ala Val Gln Arg Leu Cys Asp Ala Leu Thr
                20                  25                  30


Leu Asp Met Gly Leu Trp Lys Ser Ile Leu Thr Asp Pro Arg Val Lys
            35                  40                  45


Ile Met Arg Ser Thr Ala Phe Ile Thr Leu Arg Ile Ala Pro Phe Ile
        50                  55                  60


Pro Leu Gln Thr Asp Thr Thr Asn Ile Ala Val Val Val Ala Thr Ile
65                  70                  75                  80


Tyr Ile Thr Arg Pro Arg Gln Met Asn Leu Pro Pro Lys Thr Phe His
                85                  90                  95


Val Ile Val Asn Phe Asn Tyr Glu Val Ser Tyr Ala Met Thr Ala Thr
                100                 105                 110


Leu Arg Ile Tyr Pro Val Glu Asn Ile Asp His Val Phe Gly Ala Thr
```

228

```
                    115                      120                          125


Phe Lys Asn Pro Ile Ala Tyr Pro Leu Pro Thr Ser Ile Pro Asp Pro
    130                 135                 140


Arg Ala Asp Pro Thr Pro Ala Asp Leu Thr Pro Thr Pro Asn Leu Ser
145                 150                 155                 160


Asn Tyr Leu Gln Pro Pro Arg Leu Pro Lys Asn Pro Tyr Ala Cys Lys
                165                 170                 175


Val Ile Ser Pro Gly Val Trp Trp Ser Asp Glu Arg Arg Arg Leu Tyr
                180                 185                 190


Val Leu Ala Met Glu Pro Asn Leu Ile Gly Leu Cys Pro Ala Gly Trp
                195                 200                 205


His Ala Arg Ile Leu Gly Ser Val Leu Asn Arg Leu Leu Ser His Ala
    210                 215                 220


Asp Gly Cys Asp Glu Cys Asn His Arg Val His Val Gly Ala Leu Tyr
225                 230                 235                 240


Ala Leu Pro His Val Thr Asn His Ala Glu Gly Cys Val Cys Trp Ala
                245                 250                 255


Pro Cys Met Trp Arg Lys Ala Gly Gln Arg Glu Leu Lys Val Glu Val
                260                 265                 270


Asp Ile Gly Ala Thr Gln Val Leu Phe Val Asp Val Thr Thr Cys Ile
                275                 280                 285


Arg Ile Thr Ser Thr Lys Asn Pro Arg Ile Thr Ala Asn Leu Gly Asp
    290                 295                 300


Val Ile Ala Gly Thr Asn Ala Ser Gly Leu Ser Val Pro Val Asn Ser
305                 310                 315                 320


Ser Gly Trp Gln Leu Tyr Met Phe Gly Glu Thr Leu Ser Arg Ala Ile
                325                 330                 335


Ile Asn Gly Cys Gly Leu Leu Gln Arg Ile Cys Phe Pro Glu Thr Gln
                340                 345                 350
```

229

Arg Leu Ser Gly Glu Pro Glu Pro Thr Thr Thr
     355   360

<210> 32
<211> 199
<212> PRT
<213> Varicella zoster

<400> 32

Met Ser Gly His Thr Pro Thr Tyr Ala Ser His Arg Arg Asn Arg Val
1   5   10   15

Lys Leu Val Glu Ala His Asn Arg Ala Gly Leu Phe Lys Glu Arg Thr
            20   25   30

Leu Asp Leu Ile Arg Gly Gly Ala Ser Val Gln Asp Pro Ala Phe Val
        35   40   45

Tyr Ala Phe Thr Ala Ala Lys Glu Ala Cys Ala Asp Leu Asn Asn Gln
    50   55   60

Leu Arg Ser Ala Ala Arg Ile Ala Ser Val Glu Gln Lys Ile Arg Asp
65   70   75   80

Ile Gln Ser Lys Val Glu Glu Gln Thr Ser Ile Gln Gln Ile Leu Asn
                85   90   95

Thr Asn Arg Arg Tyr Ile Ala Pro Asp Phe Ile Arg Gly Leu Asp Lys
            100   105   110

Thr Glu Asp Asp Asn Thr Asp Asn Ile Asp Arg Leu Glu Asp Ala Val
        115   120   125

Gly Pro Asn Ile Glu His Glu Asn His Thr Trp Phe Gly Glu Asp Asp
    130   135   140

Glu Ala Leu Leu Thr Gln Trp Met Leu Thr Thr His Pro Pro Thr Ser
145   150   155   160

Lys Tyr Leu Gln Leu Gln Asp Leu Cys Val Pro Thr Thr Ile Pro Thr
                165   170   175

230

```
Asp Met Asn Gln Met Gln Pro Gln Pro Ile Ser Lys Asn Glu Asn Pro
        180                 185                 190


Pro Thr Pro His Thr Asp Val
        195



<210>  33
<211>  551
<212>  PRT
<213>  Varicella zoster


<400>  33

Met Ala Arg Ser Gly Leu Asp Arg Ile Asp Ile Ser Pro Gln Pro Ala
1               5                   10                  15


Lys Lys Ile Ala Arg Val Gly Gly Leu Gln His Pro Phe Val Lys Thr
            20                  25                  30


Asp Ile Asn Thr Ile Asn Val Glu His His Phe Ile Asp Thr Leu Gln
        35                  40                  45


Lys Thr Ser Pro Asn Met Asp Cys Arg Gly Met Thr Ala Gly Ile Phe
    50                  55                  60


Ile Arg Leu Ser His Met Tyr Lys Ile Leu Thr Thr Leu Glu Ser Pro
65                  70                  75                  80


Asn Asp Val Thr Tyr Thr Thr Pro Gly Ser Thr Asn Ala Leu Phe Phe
                85                  90                  95


Lys Thr Ser Thr Gln Pro Gln Glu Pro Arg Pro Glu Glu Leu Ala Ser
            100                 105                 110


Lys Leu Thr Gln Asp Asp Ile Lys Arg Ile Leu Leu Thr Ile Glu Ser
            115                 120                 125


Glu Thr Arg Gly Gln Gly Asp Asn Ala Ile Trp Thr Leu Leu Arg Arg
    130                 135                 140


Asn Leu Ile Thr Ala Ser Thr Leu Lys Trp Ser Val Ser Gly Pro Val
145                 150                 155                 160


Ile Pro Pro Gln Trp Phe Tyr His His Asn Thr Thr Asp Thr Tyr Gly
                165                 170                 175


                            231
```

Asp Ala Ala Ala Met Ala Phe Gly Lys Thr Asn Glu Pro Ala Ala Arg
        180   185   190

Ala Ile Val Glu Ala Leu Phe Ile Asp Pro Ala Asp Ile Arg Thr Pro
        195   200   205

Asp His Leu Thr Pro Glu Ala Thr Thr Lys Phe Phe Asn Phe Asp Met
        210   215   220

Leu Asn Thr Lys Ser Pro Ser Leu Leu Val Gly Thr Pro Arg Ile Gly
225   230   235   240

Thr Tyr Glu Cys Gly Leu Leu Ile Asp Val Arg Thr Gly Leu Ile Gly
                245   250   255

Ala Ser Leu Asp Val Leu Val Cys Asp Arg Asp Pro Leu Thr Gly Thr
        260   265   270

Leu Asn Pro His Pro Ala Glu Thr Asp Ile Ser Phe Phe Glu Ile Lys
        275   280   285

Cys Arg Ala Lys Tyr Leu Phe Asp Pro Asp Asp Lys Asn Asn Pro Leu
        290   295   300

Gly Arg Thr Tyr Thr Thr Leu Ile Asn Arg Pro Thr Met Ala Asn Leu
305   310   315   320

Arg Asp Phe Leu Tyr Thr Ile Lys Asn Pro Cys Val Ser Phe Phe Gly
                325   330   335

Pro Ser Ala Asn Pro Ser Thr Arg Glu Ala Leu Ile Thr Asp His Val
        340   345   350

Glu Trp Lys Arg Leu Gly Phe Lys Gly Gly Arg Ala Leu Thr Glu Leu
        355   360   365

Asp Ala His His Leu Gly Leu Asn Arg Thr Ile Ser Ser Arg Val Trp
        370   375   380

Val Phe Asn Asp Pro Asp Ile Gln Lys Gly Thr Ile Thr Thr Ile Ala
385   390   395   400

232

Trp Ala Thr Gly Asp Thr Ala Leu Gln Ile Pro Val Phe Ala Asn Pro
                405   410   415

Arg His Ala Asn Phe Lys Gln Ile Ala Val Gln Thr Tyr Val Leu Ser
                420   425   430

Gly Tyr Phe Pro Ala Leu Lys Leu Arg Pro Phe Leu Val Thr Phe Ile
                435   440   445

Gly Arg Val Arg Arg Pro His Glu Val Gly Val Pro Leu Arg Val Asp
        450   455   460

Thr Gln Ala Ala Ala Ile Tyr Glu Tyr Asn Trp Pro Thr Ile Pro Pro
465   470   475   480

His Cys Ala Val Pro Val Ile Ala Val Leu Thr Pro Ile Glu Val Asp
                485   490   495

Val Pro Arg Val Thr Gln Ile Leu Lys Asp Thr Gly Asn Asn Ala Ile
                500   505   510

Thr Ser Ala Leu Arg Ser Leu Arg Trp Asp Asn Leu His Pro Ala Val
                515   520   525

Glu Glu Glu Ser Val Asp Cys Ala Asn Gly Thr Thr Ser Leu Leu Arg
        530   535   540

Ala Thr Glu Lys Pro Leu Leu
545   550

<210>   34
<211>   835
<212>   PRT
<213>   Varicella zoster

<400>   34

Met Ser Pro Asn Thr Gly Glu Ser Asn Ala Ala Val Tyr Ala Ser Ser
1   5   10   15

Thr Gln Leu Ala Arg Ala Leu Tyr Gly Gly Asp Leu Val Ser Trp Ile
                20   25   30

Lys His Thr His Pro Gly Ile Ser Leu Glu Leu Gln Leu Asp Val Pro

```
              35                    40                        45

Val Lys Leu Ile Lys Pro Gly Met Ser Gln Thr Arg Pro Val Thr Val
    50                  55              60

Val Arg Ala Pro Met Gly Ser Gly Lys Thr Thr Ala Leu Leu Glu Trp
65                  70              75                      80

Leu Gln His Ala Leu Lys Ala Asp Ile Ser Val Leu Val Val Ser Cys
                85                  90                      95

Arg Arg Ser Phe Thr Gln Thr Leu Ile Gln Arg Phe Asn Asp Ala Gly
            100                 105                 110

Leu Ser Gly Phe Val Thr Tyr Leu Thr Ser Glu Thr Tyr Ile Met Gly
            115                 120                 125

Phe Lys Arg Leu Ile Val Gln Leu Glu Ser Leu His Arg Val Ser Ser
    130                 135                 140

Glu Ala Ile Asp Ser Tyr Asp Val Leu Ile Leu Asp Glu Val Met Ser
145                 150                 155                 160

Val Ile Gly Gln Leu Tyr Ser Pro Thr Met Arg Arg Leu Ser Ala Val
            165                 170                 175

Asp Ser Leu Leu Tyr Arg Leu Leu Asn Arg Cys Ser Gln Ile Ile Ala
            180                 185                 190

Met Asp Ala Thr Val Asn Ser Gln Phe Ile Asp Leu Ile Ser Gly Leu
    195                 200                 205

Arg Gly Asp Glu Asn Ile His Thr Ile Val Cys Thr Tyr Ala Gly Val
    210                 215                 220

Gly Phe Ser Gly Arg Thr Cys Thr Ile Leu Arg Asp Met Gly Ile Asp
225                 230                 235                 240

Thr Leu Val Arg Val Ile Lys Arg Ser Pro Glu His Glu Asp Val Arg
            245                 250                 255

Thr Ile His Gln Leu Arg Gly Thr Phe Phe Asp Glu Leu Ala Leu Arg
            260                 265                 270


                              234
```

Leu Gln Cys Gly His Asn Ile Cys Ile Phe Ser Ser Thr Leu Ser Phe
        275   280   285

Ser Glu Leu Val Ala Gln Phe Cys Ala Ile Phe Thr Asp Ser Ile Leu
        290   295   300

Ile Leu Asn Ser Thr Arg Pro Leu Cys Asn Val Asn Glu Trp Lys His
305   310   315   320

Phe Arg Val Leu Val Tyr Thr Thr Val Val Thr Val Gly Leu Ser Phe
                325   330   335

Asp Met Ala His Phe His Ser Met Phe Ala Tyr Ile Lys Pro Met Ser
                340   345   350

Tyr Gly Pro Asp Met Val Ser Val Tyr Gln Ser Leu Gly Arg Val Arg
        355   360   365

Leu Leu Leu Leu Asn Glu Val Leu Met Tyr Val Asp Gly Ser Arg Thr
        370   375   380

Arg Cys Gly Pro Leu Phe Ser Pro Met Leu Leu Asn Phe Thr Ile Ala
385   390   395   400

Asn Lys Phe Gln Trp Phe Pro Thr His Thr Gln Ile Thr Asn Lys Leu
                405   410   415

Cys Cys Ala Phe Arg Gln Arg Cys Ala Asn Ala Phe Thr Arg Ser Asn
                420   425   430

Thr His Leu Phe Ser Arg Phe Lys Tyr Lys His Leu Phe Glu Arg Cys
        435   440   445

Ser Leu Trp Ser Leu Ala Asp Ser Ile Asn Ile Leu Gln Thr Leu Leu
        450   455   460

Ala Ser Asn Gln Ile Leu Val Val Leu Asp Gly Met Gly Pro Ile Thr
465   470   475   480

Asp Val Ser Pro Val Gln Phe Cys Ala Phe Ile His Asp Leu Arg His
                485   490   495

235

Ser Ala Asn Ala Val Ala Ser Cys Met Arg Ser Leu Arg Gln Asp Asn
        500   505   510

Asp Ser Cys Leu Thr Asp Phe Gly Pro Ser Gly Phe Met Ala Asp Asn
        515   520   525

Ile Thr Ala Phe Met Glu Lys Tyr Leu Met Glu Ser Ile Asn Thr Glu
    530   535   540

Glu Gln Ile Lys Val Phe Lys Ala Leu Ala Cys Pro Ile Glu Gln Pro
545   550   555   560

Arg Leu Val Asn Thr Ala Ile Leu Gly Ala Cys Ile Arg Ile Pro Glu
            565   570   575

Ala Leu Glu Ala Phe Asp Val Phe Gln Lys Ile Tyr Thr His Tyr Ala
        580   585   590

Ser Gly Trp Phe Pro Val Leu Asp Lys Thr Gly Glu Phe Ser Ile Ala
        595   600   605

Thr Ile Thr Thr Ala Pro Asn Leu Thr Thr His Trp Glu Leu Phe Arg
    610   615   620

Arg Cys Ala Tyr Ile Ala Lys Thr Leu Lys Trp Asn Pro Ser Thr Glu
625   630   635   640

Gly Cys Val Thr Gln Val Leu Asp Thr Asp Ile Asn Thr Leu Phe Asn
            645   650   655

Gln His Gly Asp Ser Leu Ala Gln Leu Ile Phe Glu Val Met Arg Cys
        660   665   670

Asn Val Thr Asp Ala Lys Ile Ile Leu Asn Arg Pro Val Trp Arg Thr
        675   680   685

Thr Gly Phe Leu Asp Gly Cys His Asn Gln Cys Phe Arg Pro Ile Pro
    690   695   700

Thr Lys His Glu Tyr Asn Ile Ala Leu Phe Arg Leu Ile Trp Glu Gln
705   710   715   720

236

```
Leu Phe Gly Ala Arg Val Thr Lys Ser Thr Gln Thr Phe Pro Gly Ser
            725                 730                 735


Thr Arg Val Lys Asn Leu Lys Lys Lys Asp Leu Glu Thr Leu Leu Asp
            740                 745                 750


Ser Ile Asn Val Asp Arg Ser Ala Cys Arg Thr Tyr Arg Gln Leu Tyr
            755                 760                 765


Asn Leu Leu Met Ser Gln Arg His Ser Phe Ser Gln Gln Arg Tyr Lys
            770                 775                 780


Ile Thr Ala Pro Ala Trp Ala Arg His Val Tyr Phe Gln Ala His Gln
785                 790                 795                 800


Met His Leu Ala Pro His Ala Glu Ala Met Leu Gln Leu Ala Leu Ser
            805                 810                 815


Glu Leu Ser Pro Gly Ser Trp Pro Arg Ile Asn Gly Ala Val Asn Phe
            820                 825                 830


Glu Ser Leu
        835


<210>  35
<211>  771
<212>  PRT
<213>  Varicella zoster

<400>  35

Met Asp Ala Thr Gln Ile Thr Leu Val Arg Glu Ser Gly His Ile Cys
1                 5                 10                15


Ala Ala Ser Ile Tyr Thr Ser Trp Thr Gln Ser Gly Gln Leu Thr Gln
            20                25                30


Asn Gly Leu Ser Val Leu Tyr Tyr Leu Leu Cys Lys Asn Ser Cys Gly
            35                40                45


Lys Tyr Val Pro Lys Phe Ala Glu Ile Thr Val Gln Gln Glu Asp Leu
            50                55                60


Cys Arg Tyr Ser Arg His Gly Gly Ser Val Ser Ala Ala Thr Phe Ala
65                70                75                80
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237

Ser Ile Cys Arg Ala Ala Ser Ser Ala Ala Leu Asp Ala Trp Pro Leu
85 90 95

Glu Pro Leu Gly Asn Ala Asp Thr Trp Arg Cys Leu His Gly Thr Ala
100 105 110

Leu Ala Thr Leu Arg Arg Val Leu Gly Phe Lys Ser Phe Tyr Ser Pro
115 120 125

Val Thr Phe Glu Thr Asp Thr Asn Thr Gly Leu Leu Leu Lys Thr Ile
130 135 140

Pro Asp Glu His Ala Leu Asn Asn Asp Asn Thr Pro Ser Thr Gly Val
145 150 155 160

Leu Arg Ala Asn Phe Pro Val Ala Ile Asp Val Ser Ala Val Ser Ala
165 170 175

Cys Asn Ala His Thr Gln Gly Thr Ser Leu Ala Tyr Ala Arg Leu Thr
180 185 190

Ala Leu Lys Ser Asn Gly Asp Thr Gln Gln Gln Thr Pro Leu Asp Val
195 200 205

Glu Val Ile Thr Pro Lys Ala Tyr Ile Arg Arg Lys Tyr Lys Ser Thr
210 215 220

Phe Ser Pro Pro Ile Glu Arg Glu Gly Gln Thr Ser Asp Leu Phe Asn
225 230 235 240

Leu Glu Glu Arg Arg Leu Val Leu Ser Gly Asn Arg Ala Ile Val Val
245 250 255

Arg Val Leu Leu Pro Cys Tyr Phe Asp Cys Leu Thr Thr Asp Ser Thr
260 265 270

Val Thr Ser Ser Leu Ser Ile Leu Ala Thr Tyr Arg Leu Trp Tyr Ala
275 280 285

Ala Ala Phe Gly Lys Pro Gly Val Val Arg Pro Ile Phe Ala Tyr Leu
290 295 300

238

Gly Pro Glu Leu Asn Pro Lys Gly Glu Asp Arg Asp Tyr Phe Cys Thr
305   310   315   320

Val Gly Phe Pro Gly Trp Thr Thr Leu Arg Thr Gln Thr Pro Ala Val
                325   330   335

Glu Ser Ile Arg Thr Ala Thr Glu Met Tyr Met Glu Thr Asp Gly Leu
                340   345   350

Trp Pro Val Thr Gly Ile Gln Ala Phe His Tyr Leu Ala Pro Trp Gly
                355   360   365

Gln His Pro Pro Leu Pro Pro Arg Val Gln Asp Leu Ile Gly Gln Ile
                370   375   380

Pro Gln Asp Thr Gly His Ala Asp Ala Thr Val Asn Trp Asp Ala Gly
385   390   395   400

Arg Ile Ser Thr Val Phe Lys Gln Pro Val Gln Leu Gln Asp Arg Trp
                405   410   415

Met Ala Lys Phe Asp Phe Ser Ala Phe Phe Pro Thr Ile Tyr Cys Ala
                420   425   430

Met Phe Pro Met His Phe Arg Leu Gly Lys Ile Val Leu Ala Arg Met
                435   440   445

Arg Arg Gly Met Gly Cys Leu Lys Pro Ala Leu Val Ser Phe Phe Gly
                450   455   460

Gly Leu Arg His Ile Leu Pro Ser Ile Tyr Lys Ala Ile Ile Phe Ile
465   470   475   480

Ala Asn Glu Ile Ser Leu Cys Val Glu Gln Thr Ala Leu Glu Gln Gly
                485   490   495

Phe Ala Ile Cys Thr Tyr Ile Lys Asp Gly Phe Trp Gly Ile Phe Thr
                500   505   510

Asp Leu His Thr Arg Asn Val Cys Ser Asp Gln Ala Arg Cys Ser Ala
                515   520   525

239

Leu Asn Leu Ala Ala Thr Cys Glu Arg Ala Val Thr Gly Leu Leu Arg
    530   535   540

Ile Gln Leu Gly Leu Asn Phe Thr Pro Ala Met Glu Pro Val Leu Arg
545   550   555   560

Val Glu Gly Val Tyr Thr His Ala Phe Thr Trp Cys Thr Thr Gly Ser
                565   570   575

Trp Leu Trp Asn Leu Gln Thr Asn Thr Pro Pro Asp Leu Val Gly Val
                580   585   590

Pro Trp Arg Ser Gln Ala Ala Arg Asp Leu Lys Glu Arg Leu Ser Gly
        595   600   605

Leu Leu Cys Thr Ala Thr Lys Ile Arg Glu Arg Ile Gln Glu Asn Cys
    610   615   620

Ile Trp Asp His Val Leu Tyr Asp Ile Trp Ala Gly Gln Val Val Glu
625   630   635   640

Ala Ala Arg Lys Thr Tyr Val Asp Phe Phe Glu His Val Phe Asp Arg
                645   650   655

Arg Tyr Thr Pro Val Tyr Trp Ser Leu Gln Glu Gln Asn Ser Glu Thr
                660   665   670

Lys Ala Ile Pro Ala Ser Tyr Leu Thr Tyr Gly His Met Gln Asp Lys
        675   680   685

Asp Tyr Lys Pro Arg Gln Ile Ile Met Val Arg Asn Pro Asn Pro His
    690   695   700

Gly Pro Pro Thr Val Val Tyr Trp Glu Leu Leu Pro Ser Cys Ala Cys
705   710   715   720

Ile Pro Pro Ile Asp Cys Ala Ala His Leu Lys Pro Leu Ile His Thr
                725   730   735

Phe Val Thr Ile Ile Asn His Leu Leu Asp Ala His Asn Asp Phe Ser
                740   745   750

Ser Pro Ser Leu Lys Phe Thr Asp Asp Pro Leu Ala Ser Tyr Asn Phe

Leu Phe Leu
    770

<210> 36
<211> 881
<212> PRT
<213> Varicella zoster

<400> 36

Met Lys Arg Ser Ile Ser Val Asp Ser Ser Ser Pro Lys Asn Val Phe
1   5   10   15

Asn Pro Glu Thr Pro Asn Gly Phe Asp Asp Ser Val Tyr Leu Asn Phe
            20   25   30

Thr Ser Met His Ser Ile Gln Pro Ile Leu Ser Arg Ile Arg Glu Leu
        35   40   45

Ala Ala Ile Thr Ile Pro Lys Glu Arg Val Pro Arg Leu Cys Trp Phe
    50   55   60

Lys Gln Leu Leu Glu Leu Gln Ala Pro Pro Glu Met Gln Arg Asn Glu
65   70   75   80

Leu Pro Phe Ser Val Tyr Leu Ile Ser Gly Asn Ala Gly Ser Gly Lys
                85   90   95

Ser Thr Cys Ile Gln Thr Leu Asn Glu Ala Ile Asp Cys Ile Ile Thr
            100   105   110

Gly Ser Thr Arg Val Ala Ala Gln Asn Val His Ala Lys Leu Ser Thr
            115   120   125

Ala Tyr Ala Ser Arg Pro Ile Asn Thr Ile Phe His Glu Phe Gly Phe
    130   135   140

Arg Gly Asn His Ile Gln Ala Gln Leu Gly Arg Tyr Ala Tyr Asn Trp
145   150   155   160

Thr Thr Thr Pro Pro Ser Ile Glu Asp Leu Gln Lys Arg Asp Ile Val
                165   170   175

241

```
Tyr Tyr Trp Glu Val Leu Ile Asp Ile Thr Lys Arg Val Phe Gln Met
        180                 185                 190

Gly Asp Asp Gly Arg Gly Gly Thr Ser Thr Phe Lys Thr Leu Trp Ala
        195                 200                 205

Ile Glu Arg Leu Leu Asn Lys Pro Thr Gly Ser Met Ser Gly Thr Ala
    210                 215                 220

Phe Ile Ala Cys Gly Ser Leu Pro Ala Phe Thr Arg Ser Asn Val Ile
225                 230                 235                 240

Val Ile Asp Glu Ala Gly Leu Leu Gly Arg His Ile Leu Thr Ala Val
            245                 250                 255

Val Tyr Cys Trp Trp Leu Leu Asn Ala Ile Tyr Gln Ser Pro Gln Tyr
        260                 265                 270

Ile Asn Gly Arg Lys Pro Val Ile Val Cys Val Gly Ser Pro Thr Gln
        275                 280                 285

Thr Asp Ser Leu Glu Ser His Phe Gln His Asp Met Gln Arg Ser His
    290                 295                 300

Val Thr Pro Ser Glu Asn Ile Leu Thr Tyr Ile Ile Cys Asn Gln Thr
305                 310                 315                 320

Leu Arg Gln Tyr Thr Asn Ile Ser His Asn Trp Ala Ile Phe Ile Asn
                325                 330                 335

Asn Lys Arg Cys Gln Glu Asp Asp Phe Gly Asn Leu Leu Lys Thr Leu
        340                 345                 350

Glu Tyr Gly Leu Pro Ile Thr Glu Ala His Ala Arg Leu Val Asp Thr
        355                 360                 365

Phe Val Val Pro Ala Ser Tyr Ile Asn Asn Pro Ala Asn Leu Pro Gly
    370                 375                 380

Trp Thr Arg Leu Tyr Ser Ser His Lys Glu Val Ser Ala Tyr Met Ser
385                 390                 395                 400
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242

Lys Leu His Ala His Leu Lys Leu Ser Lys Asn Asp His Phe Ser Val
                405   410   415

Phe Ala Leu Pro Thr Tyr Thr Phe Ile Arg Leu Thr Ala Phe Asp Glu
                420   425   430

Tyr Arg Lys Leu Thr Gly Gln Pro Gly Leu Ser Val Glu His Trp Ile
                435   440   445

Arg Ala Asn Ser Gly Arg Leu His Asn Tyr Ser Gln Ser Arg Asp His
        450   455   460

Asp Met Gly Thr Val Lys Tyr Glu Thr His Ser Asn Arg Asp Leu Ile
465   470   475   480

Val Ala Arg Thr Asp Ile Thr Tyr Val Leu Asn Ser Leu Val Val Val
                485   490   495

Thr Thr Arg Leu Arg Lys Leu Val Ile Gly Phe Ser Gly Thr Phe Gln
                500   505   510

Ser Phe Ala Lys Val Leu Arg Asp Asp Ser Phe Val Lys Ala Arg Gly
                515   520   525

Glu Thr Ser Ile Glu Tyr Ala Tyr Arg Phe Leu Ser Asn Leu Ile Phe
        530   535   540

Gly Gly Leu Ile Asn Phe Tyr Asn Phe Leu Leu Asn Lys Asn Leu His
545   550   555   560

Pro Asp Lys Val Ser Leu Ala Tyr Lys Arg Leu Ala Ala Leu Thr Leu
                565   570   575

Glu Leu Leu Ser Gly Thr Asn Lys Ala Pro Leu His Glu Ala Ala Val
                580   585   590

Asn Gly Ala Gly Ala Gly Ile Asp Cys Asp Gly Ala Ala Thr Ser Ala
        595   600   605

Asp Lys Ala Phe Cys Phe Thr Lys Ala Pro Glu Ser Lys Val Thr Ala
        610   615   620

Ser Ile Pro Glu Asp Pro Asp Asp Val Ile Phe Thr Ala Leu Asn Asp

243

Glu Val Ile Asp Leu Val Tyr Cys Gln Tyr Glu Phe Ser Tyr Pro Lys
            645   650   655

Ser Ser Asn Glu Val His Ala Gln Phe Leu Leu Met Lys Ala Ile Tyr
            660   665   670

Asp Gly Arg Tyr Ala Ile Leu Ala Glu Leu Phe Glu Ser Ser Phe Thr
            675   680   685

Thr Ala Pro Phe Ser Ala Tyr Val Asp Asn Val Asn Phe Asn Gly Ser
    690   695   700

Glu Leu Leu Ile Gly Asn Val Arg Gly Gly Leu Leu Ser Leu Ala Leu
705   710   715   720

Gln Thr Asp Thr Tyr Thr Leu Leu Gly Tyr Thr Phe Ala Pro Val Pro
            725   730   735

Val Phe Val Glu Glu Leu Thr Arg Lys Lys Leu Tyr Arg Glu Thr Thr
            740   745   750

Glu Met Leu Tyr Ala Leu His Val Pro Leu Met Val Leu Gln Asp Gln
            755   760   765

His Gly Phe Val Ser Ile Val Asn Ala Asn Val Cys Glu Phe Thr Glu
    770   775   780

Ser Ile Glu Asp Ala Glu Leu Ala Met Ala Thr Thr Val Asp Tyr Gly
785   790   795   800

Leu Ser Ser Lys Leu Ala Met Thr Ile Ala Arg Ser Gln Gly Leu Ser
            805   810   815

Leu Glu Lys Val Ala Ile Cys Phe Thr Ala Asp Lys Leu Arg Leu Asn
            820   825   830

Ser Val Tyr Val Ala Met Ser Arg Thr Val Ser Ser Arg Phe Leu Lys
            835   840   845

Met Asn Leu Asn Pro Leu Arg Glu Arg Tyr Glu Lys Ser Ala Glu Ile
    850   855   860

244

Ser Asp His Ile Leu Ala Ala Leu Arg Asp Pro Asn Val His Val Val
865   870   875   880

Tyr

<210> 37
<211> 278
<212> PRT
<213> Varicella zoster

<400> 37

Met Phe Cys Thr Ser Pro Ala Thr Arg Gly Asp Ser Ser Glu Ser Lys
1   5   10   15

Pro Gly Ala Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala
            20   25   30

Pro Gly Pro Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe
        35   40   45

Cys Thr Pro Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile
        50   55   60

Asn Arg Val Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg
65   70   75   80

Asp Ser Arg Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly
                85   90   95

Arg Thr Arg Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln
            100   105   110

Leu Gln Pro Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val
            115   120   125

Ser His Arg Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn
        130   135   140

Val Pro Leu His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly
145   150   155   160

Gly Glu Asp Asp Ser Asp Asp Asp Gly Ser Thr Pro Ser Asp Val Ile
            165   170   175

Glu Phe Arg Asp Ser Asp Ala Glu Ser Ser Asp Gly Glu Asp Phe Ile
            180   185   190

Val Glu Glu Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly
        195   200   205

Val Pro Gly Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser
        210   215   220

Pro Lys Arg Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr
225   230   235   240

Ala Glu Tyr Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly
            245   250   255

Val Asp Trp Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile
            260   265   270

Pro Pro Pro His Gly Val
        275

<210>   38
<211>   180
<212>   PRT
<213>   Varicella zoster

<400>   38

Met Asn Leu Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala
1   5   10   15

Gly Leu Tyr Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met
            20   25   30

Asn Asp Ala Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr
        35   40   45

Glu Ala Tyr Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala
    50   55   60

Ser Leu Trp Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu
65   70   75   80

246

```
Leu Ala Ala Asp Arg Gln Arg Pro Pro Ser Val Pro Pro Ile Arg Arg
              85                  90                  95


Ala Val Leu Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser
              100                 105                 110


His Leu Glu Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys
          115                 120                 125


Leu Gly His Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys
      130                 135                 140


Cys Ile Arg Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg
145                 150                 155                 160


Leu Phe Asp Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr
              165                 170                 175


Tyr Glu Arg Ser
          180



<210>  39
<211>  393
<212>  PRT
<213>  Varicella zoster

<400>  39

Met Asn Asp Val Asp Ala Thr Asp Thr Phe Val Gly Gln Gly Lys Phe
1               5                   10                  15


Arg Gly Ala Ile Ser Thr Ser Pro Ser His Ile Met Gln Thr Cys Gly
              20                  25                  30


Phe Ile Gln Gln Met Phe Pro Val Glu Met Ser Pro Gly Ile Glu Ser
          35                  40                  45


Glu Asp Asp Pro Asn Tyr Asp Val Asn Met Asp Ile Gln Ser Phe Asn
      50                  55                  60


Ile Phe Asp Gly Val His Glu Thr Glu Ala Glu Ala Ser Val Ala Leu
65                  70                  75                  80
```

247

Cys Ala Glu Ala Arg Val Gly Ile Asn Lys Ala Gly Phe Val Ile Leu
                85   90   95

Lys Thr Phe Thr Pro Gly Ala Glu Gly Phe Ala Phe Ala Cys Met Asp
                100   105   110

Ser Lys Thr Cys Glu His Val Val Ile Lys Ala Gly Gln Arg Gln Gly
        115   120   125

Thr Ala Thr Glu Ala Thr Val Leu Arg Ala Leu Thr His Pro Ser Val
        130   135   140

Val Gln Leu Lys Gly Thr Phe Thr Tyr Asn Lys Met Thr Cys Leu Ile
145   150   155   160

Leu Pro Arg Tyr Arg Thr Asp Leu Tyr Cys Tyr Leu Ala Ala Lys Arg
                165   170   175

Asn Leu Pro Ile Cys Asp Ile Leu Ala Ile Gln Arg Ser Val Leu Arg
                180   185   190

Ala Leu Gln Tyr Leu His Asn Asn Ser Ile Ile His Arg Asp Ile Lys
        195   200   205

Ser Glu Asn Ile Phe Ile Asn His Pro Gly Asp Val Cys Val Gly Asp
        210   215   220

Phe Gly Ala Ala Cys Phe Pro Val Asp Ile Asn Ala Asn Arg Tyr Tyr
225   230   235   240

Gly Trp Ala Gly Thr Ile Ala Thr Asn Ser Pro Glu Leu Leu Ala Arg
                245   250   255

Asp Pro Tyr Gly Pro Ala Val Asp Ile Trp Ser Ala Gly Ile Val Leu
                260   265   270

Phe Glu Met Ala Thr Gly Gln Asn Ser Leu Phe Glu Arg Asp Gly Leu
        275   280   285

Asp Gly Asn Cys Asp Ser Glu Arg Gln Ile Lys Leu Ile Ile Arg Arg
        290   295   300

Ser Gly Thr His Pro Asn Glu Phe Pro Ile Asn Pro Thr Ser Asn Leu

248

Arg Arg Gln Tyr Ile Gly Leu Ala Lys Arg Ser Ser Arg Lys Pro Gly
            325   330   335

Ser Arg Pro Leu Trp Thr Asn Leu Tyr Glu Leu Pro Ile Asp Leu Glu
            340   345   350

Tyr Leu Ile Cys Lys Met Leu Ser Phe Asp Ala Arg His Arg Pro Ser
            355   360   365

Ala Glu Val Leu Leu Asn His Ser Val Phe Gln Thr Leu Pro Asp Pro
      370   375   380

Tyr Pro Asn Pro Met Glu Val Gly Asp
385   390

<210> 40
<211> 354
<212> PRT
<213> Varicella zoster

<400> 40

Met Phe Leu Ile Gln Cys Leu Ile Ser Ala Val Ile Phe Tyr Ile Gln
1   5   10   15

Val Thr Asn Ala Leu Ile Phe Lys Gly Asp His Val Ser Leu Gln Val
            20   25   30

Asn Ser Ser Leu Thr Ser Ile Leu Ile Pro Met Gln Asn Asp Asn Tyr
            35   40   45

Thr Glu Ile Lys Gly Gln Leu Val Phe Ile Gly Glu Gln Leu Pro Thr
      50   55   60

Gly Thr Asn Tyr Ser Gly Thr Leu Glu Leu Leu Tyr Ala Asp Thr Val
65   70   75   80

Ala Phe Cys Phe Arg Ser Val Gln Val Ile Arg Tyr Asp Gly Cys Pro
                  85   90   95

Arg Ile Arg Thr Ser Ala Phe Ile Ser Cys Arg Tyr Lys His Ser Trp
            100   105   110

His Tyr Gly Asn Ser Thr Asp Arg Ile Ser Thr Glu Pro Asp Ala Gly
        115   120   125

Val Met Leu Lys Ile Thr Lys Pro Gly Ile Asn Asp Ala Gly Val Tyr
        130   135   140

Val Leu Leu Val Arg Leu Asp His Ser Arg Ser Thr Asp Gly Phe Ile
145   150   155   160

Leu Gly Val Asn Val Tyr Thr Ala Gly Ser His His Asn Ile His Gly
                165   170   175

Val Ile Tyr Thr Ser Pro Ser Leu Gln Asn Gly Tyr Ser Thr Arg Ala
        180   185   190

Leu Phe Gln Gln Ala Arg Leu Cys Asp Leu Pro Ala Thr Pro Lys Gly
        195   200   205

Ser Gly Thr Ser Leu Phe Gln His Met Leu Asp Leu Arg Ala Gly Lys
        210   215   220

Ser Leu Glu Asp Asn Pro Trp Leu His Glu Asp Val Val Thr Thr Glu
225   230   235   240

Thr Lys Ser Val Val Lys Glu Gly Ile Glu Asn His Val Tyr Pro Thr
                245   250   255

Asp Met Ser Thr Leu Pro Glu Lys Ser Leu Asn Asp Pro Pro Glu Asn
        260   265   270

Leu Leu Ile Ile Ile Pro Ile Val Ala Ser Val Met Ile Leu Thr Ala
        275   280   285

Met Val Ile Val Ile Val Ile Ser Val Lys Arg Arg Arg Ile Lys Lys
        290   295   300

His Pro Ile Tyr Arg Pro Asn Thr Lys Thr Arg Arg Gly Ile Gln Asn
305   310   315   320

Ala Thr Pro Glu Ser Asp Val Met Leu Glu Ala Ala Ile Ala Gln Leu
                325   330   335

250

Ala Thr Ile Arg Glu Glu Ser Pro Pro His Ser Val Val Asn Pro Phe
        340   345   350

Val Lys

<210> 41
<211> 623
<212> PRT
<213> Varicella zoster

<400> 41

Met Gly Thr Val Asn Lys Pro Val Val Gly Val Leu Met Gly Phe Gly
1   5   10   15

Ile Ile Thr Gly Thr Leu Arg Ile Thr Asn Pro Val Arg Ala Ser Val
            20   25   30

Leu Arg Tyr Asp Asp Phe His Thr Asp Glu Asp Lys Leu Asp Thr Asn
            35   40   45

Ser Val Tyr Glu Pro Tyr Tyr His Ser Asp His Ala Glu Ser Ser Trp
    50   55   60

Val Asn Arg Gly Glu Ser Ser Arg Lys Ala Tyr Asp His Asn Ser Pro
65   70   75   80

Tyr Ile Trp Pro Arg Asn Asp Tyr Asp Gly Phe Leu Glu Asn Ala His
                85   90   95

Glu His His Gly Val Tyr Asn Gln Gly Arg Gly Ile Asp Ser Gly Glu
            100   105   110

Arg Leu Met Gln Pro Thr Gln Met Ser Ala Gln Glu Asp Leu Gly Asp
        115   120   125

Asp Thr Gly Ile His Val Ile Pro Thr Leu Asn Gly Asp Asp Arg His
    130   135   140

Lys Ile Val Asn Val Asp Gln Arg Gln Tyr Gly Asp Val Phe Lys Gly
145   150   155   160

Asp Leu Asn Pro Lys Pro Gln Gly Gln Arg Leu Ile Glu Val Ser Val
                165   170   175

251

Glu Glu Asn His Pro Phe Thr Leu Arg Ala Pro Ile Gln Arg Ile Tyr
        180   185   190

Gly Val Arg Tyr Thr Glu Thr Trp Ser Phe Leu Pro Ser Leu Thr Cys
        195   200   205

Thr Gly Asp Ala Ala Pro Ala Ile Gln His Ile Cys Leu Lys His Thr
        210   215   220

Thr Cys Phe Gln Asp Val Val Val Asp Val Asp Cys Ala Glu Asn Thr
225   230   235   240

Lys Glu Asp Gln Leu Ala Glu Ile Ser Tyr Arg Phe Gln Gly Lys Lys
                245   250   255

Glu Ala Asp Gln Pro Trp Ile Val Val Asn Thr Ser Thr Leu Phe Asp
                260   265   270

Glu Leu Glu Leu Asp Pro Pro Glu Ile Glu Pro Gly Val Leu Lys Val
                275   280   285

Leu Arg Thr Glu Lys Gln Tyr Leu Gly Val Tyr Ile Trp Asn Met Arg
        290   295   300

Gly Ser Asp Gly Thr Ser Thr Tyr Ala Thr Phe Leu Val Thr Trp Lys
305   310   315   320

Gly Asp Glu Lys Thr Arg Asn Pro Thr Pro Ala Val Thr Pro Gln Pro
                325   330   335

Arg Gly Ala Glu Phe His Met Trp Asn Tyr His Ser His Val Phe Ser
        340   345   350

Val Gly Asp Thr Phe Ser Leu Ala Met His Leu Gln Tyr Lys Ile His
        355   360   365

Glu Ala Pro Phe Asp Leu Leu Leu Glu Trp Leu Tyr Val Pro Ile Asp
        370   375   380

Pro Thr Cys Gln Pro Met Arg Leu Tyr Ser Thr Cys Leu Tyr His Pro
385   390   395   400

252

```
Asn Ala Pro Gln Cys Leu Ser His Met Asn Ser Gly Cys Thr Phe Thr
            405                 410                 415

Ser Pro His Leu Ala Gln Arg Val Ala Ser Thr Val Tyr Gln Asn Cys
            420                 425                 430

Glu His Ala Asp Asn Tyr Thr Ala Tyr Cys Leu Gly Ile Ser His Met
            435                 440                 445

Glu Pro Ser Phe Gly Leu Ile Leu His Asp Gly Gly Thr Thr Leu Lys
            450                 455                 460

Phe Val Asp Thr Pro Glu Ser Leu Ser Gly Leu Tyr Val Phe Val Val
465                 470                 475                 480

Tyr Phe Asn Gly His Val Glu Ala Val Ala Tyr Thr Val Val Ser Thr
            485                 490                 495

Val Asp His Phe Val Asn Ala Ile Glu Glu Arg Gly Phe Pro Pro Thr
            500                 505                 510

Ala Gly Gln Pro Pro Ala Thr Thr Lys Pro Lys Glu Ile Thr Pro Val
            515                 520                 525

Asn Pro Gly Thr Ser Pro Leu Leu Arg Tyr Ala Ala Trp Thr Gly Gly
            530                 535                 540

Leu Ala Ala Val Val Leu Leu Cys Leu Val Ile Phe Leu Ile Cys Thr
545                 550                 555                 560

Ala Lys Arg Met Arg Val Lys Ala Tyr Arg Val Asp Lys Ser Pro Tyr
            565                 570                 575

Asn Gln Ser Met Tyr Tyr Ala Gly Leu Pro Val Asp Asp Phe Glu Asp
            580                 585                 590

Ser Glu Ser Thr Asp Thr Glu Glu Glu Phe Gly Asn Ala Ile Gly Gly
            595                 600                 605

Ser His Gly Gly Ser Ser Tyr Thr Val Tyr Ile Asp Lys Thr Arg
610                 615                 620
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253

<210> 42
<211> 1310
<212> PRT
<213> Varicella zoster

<400> 42

Met Asp Thr Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser
1   5   10   15

Pro Asp Thr Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala
                20   25   30

Ala Glu His Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu
            35   40   45

Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
        50   55   60

Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65   70   75   80

Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85   90   95

Asp Leu Met Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
            100   105   110

Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
        115   120   125

Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
    130   135   140

Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145   150   155   160

Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
                165   170   175

Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
            180   185   190

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
        195   200   205

254

```
Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
    210                 215                 220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro
225                 230                 235                 240

Ala Gln Gly Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro
                245                 250                 255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
                260                 265                 270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
                275                 280                 285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
    290                 295                 300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305                 310                 315                 320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
                325                 330                 335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
                340                 345                 350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
    355                 360                 365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
    370                 375                 380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser
385                 390                 395                 400

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
                405                 410                 415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
                420                 425                 430
```

255

```
Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
        435                 440                 445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
        450                 455                 460

Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465                 470                 475                 480

Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
                485                 490                 495

Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Val
                500                 505                 510

Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
        515                 520                 525

Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
        530                 535                 540

Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545                 550                 555                 560

Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
                565                 570                 575

Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
                580                 585                 590

Ala Leu Trp Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg
        595                 600                 605

Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
        610                 615                 620

Ala Phe Ala Ser Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala
625                 630                 635                 640

Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
                645                 650                 655
```

256

Ala Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660   665   670

Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
            675   680   685

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
    690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
            740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
            755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
    770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
            820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
            835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
    850   855   860

Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865   870   875   880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr

257

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
    900   905   910

Asn Ala Arg Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
    915   920   925

Gly Ala Val Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg
    930   935   940

Leu Leu Val Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Arg Asp Gly
945   950   955   960

Pro Ala Leu Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro
        965   970   975

Asp Ala Gln Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly
        980   985   990

Leu Ala Arg Ala Val Phe Ala Ser Ser Arg Thr Phe Gly Pro Ala Ser
    995   1000   1005

Phe Ala Arg Ile Glu Thr Ala Phe Ala Asn Leu Tyr Pro Gly Glu
    1010   1015   1020

Gln Pro Leu Cys Leu Cys Arg Gly Gly Asn Val Ala Tyr Thr Val
    1025   1030   1035

Cys Thr Arg Ala Gly Pro Lys Thr Arg Val Pro Leu Ser Pro Arg
    1040   1045   1050

Glu Tyr Arg Gln Tyr Val Leu Pro Gly Phe Asp Gly Cys Lys Asp
    1055   1060   1065

Leu Ala Arg Gln Ser Arg Gly Leu Gly Leu Gly Ala Ala Asp Phe
    1070   1075   1080

Val Asp Glu Ala Ala His Ser His Arg Ala Ala Asn Arg Trp Gly
    1085   1090   1095

Leu Gly Ala Ala Leu Arg Pro Val Phe Leu Pro Glu Gly Arg Arg
    1100   1105   1110

258

```
Pro Gly  Ala Ala Gly Pro Glu  Ala Gly Asp Val Pro  Thr Trp Ala
    1115             1120             1125

Arg Val  Phe Cys Arg His Ala  Leu Leu Glu Pro Asp  Pro Ala Ala
    1130             1135             1140

Glu Pro  Leu Val Leu Pro Pro  Val Ala Gly Arg Ser  Val Ala Leu
    1145             1150             1155

Tyr Ala  Ser Ala Asp Glu Ala  Arg Asn Ala Leu Pro  Pro Ile Pro
    1160             1165             1170

Arg Val  Met Trp Pro Pro Gly  Phe Gly Ala Ala Glu  Thr Val Leu
    1175             1180             1185

Glu Gly  Ser Asp Gly Thr Arg  Phe Val Phe Gly His  His Gly Gly
    1190             1195             1200

Ser Glu  Arg Pro Ser Glu Thr  Gln Ala Gly Arg Gln  Arg Arg Thr
    1205             1210             1215

Ala Asp  Asp Arg Glu His Ala  Leu Glu Leu Asp Asp  Trp Glu Val
    1220             1225             1230

Gly Cys  Glu Asp Ala Trp Asp  Ser Glu Glu Gly Gly  Gly Asp Asp
    1235             1240             1245

Gly Asp  Ala Pro Gly Ser Ser  Phe Gly Val Ser Ile  Val Ser Val
    1250             1255             1260

Ala Pro  Gly Val Leu Arg Asp  Arg Arg Val Gly Leu  Arg Pro Ala
    1265             1270             1275

Val Lys  Val Glu Leu Leu Ser  Ser Ser Ser Ser Ser  Glu Asp Glu
    1280             1285             1290

Asp Asp  Val Trp Gly Gly Arg  Gly Gly Arg Ser Pro  Pro Gln Ser
    1295             1300             1305

Arg Gly
    1310
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259

<210> 43
<211> 1002
<212> DNA
<213> Varicella zoster

<220>
<221> CDS
<222> (1)..(1002)

<400> 43
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atg cat tta aag cct acc aga ttt ttc cac gca aac caa ccg cca atg        48
Met His Leu Lys Pro Thr Arg Phe Phe His Ala Asn Gln Pro Pro Met
1               5                   10                  15

ccg cat tca tac gag atg gag gac tta tgc ttc gac gac atg caa tat        96
Pro His Ser Tyr Glu Met Glu Asp Leu Cys Phe Asp Asp Met Gln Tyr
                20                  25                  30

cgc tgg tct ccc tcg aac aca ccc tat cga agt atg tct agg cga tat       144
Arg Trp Ser Pro Ser Asn Thr Pro Tyr Arg Ser Met Ser Arg Arg Tyr
            35                  40                  45

aaa tcc gta tct cgg agc ggg cct tcg atg cgt gta cgc tcc aga acg       192
Lys Ser Val Ser Arg Ser Gly Pro Ser Met Arg Val Arg Ser Arg Thr
        50                  55                  60

cca tgc cgc cgt caa acc att cga gga aaa ctt atg tca aag gag cgg       240
Pro Cys Arg Arg Gln Thr Ile Arg Gly Lys Leu Met Ser Lys Glu Arg
65                  70                  75                  80

tct gtg tac cgc cat tat ttt aat tac atc gca agg tcc ccc cca gaa       288
Ser Val Tyr Arg His Tyr Phe Asn Tyr Ile Ala Arg Ser Pro Pro Glu
                85                  90                  95

gaa cta gct acc gtt aga ggc tta atc gtg cca att att aag acg acc       336
Glu Leu Ala Thr Val Arg Gly Leu Ile Val Pro Ile Ile Lys Thr Thr
                100                 105                 110

cct gtc acc ctt ccg ttt aac ttg ggt cag aca gtg gcg gat aac tgc       384
Pro Val Thr Leu Pro Phe Asn Leu Gly Gln Thr Val Ala Asp Asn Cys
            115                 120                 125

ctg tcg tta tcc gga atg ggt tat cat tta ggt ctc gga ggt tat tgt       432
Leu Ser Leu Ser Gly Met Gly Tyr His Leu Gly Leu Gly Gly Tyr Cys
        130                 135                 140

ccg aca tgc act gca tct gga gaa ccg cgt cta tgt cga acc gat cgg       480
Pro Thr Cys Thr Ala Ser Gly Glu Pro Arg Leu Cys Arg Thr Asp Arg
145                 150                 155                 160

gcg gct ctg ata cta gca tat gtt cag cag ctt aac aac ata tac gaa       528
Ala Ala Leu Ile Leu Ala Tyr Val Gln Gln Leu Asn Asn Ile Tyr Glu
                165                 170                 175

tat cgt gtg ttt ctt gca tcc att ttg gcg cta tca gac cga gcc aac       576
```

```
Tyr Arg Val Phe Leu Ala Ser Ile Leu Ala Leu Ser Asp Arg Ala Asn
        180                 185                 190

atg caa gca gcg tcc gct gaa ccc cta ttg tcg agc gta ttg gca caa      624
Met Gln Ala Ala Ser Ala Glu Pro Leu Leu Ser Ser Val Leu Ala Gln
        195                 200                 205

ccg gaa tta ttt ttt atg tat cat att atg agg gag ggg ggc atg cga      672
Pro Glu Leu Phe Phe Met Tyr His Ile Met Arg Glu Gly Gly Met Arg
        210                 215                 220

gat ata cgc gta ctt ttt tat cgt gat gga gat gcc gga ggg ttt atg      720
Asp Ile Arg Val Leu Phe Tyr Arg Asp Gly Asp Ala Gly Gly Phe Met
225                 230                 235                 240

atg tat gtt ata ttt ccg ggg aaa tct gtt cac ctc cat tac aga cta      768
Met Tyr Val Ile Phe Pro Gly Lys Ser Val His Leu His Tyr Arg Leu
                245                 250                 255

atc gat cat ata cag gcc gcg tgt cgg ggg tat aaa ata gtc gca cac      816
Ile Asp His Ile Gln Ala Ala Cys Arg Gly Tyr Lys Ile Val Ala His
            260                 265                 270

gtt tgg cag aca aca ttt tta ctg tcg gta tgt cgc aac cca gaa caa      864
Val Trp Gln Thr Thr Phe Leu Leu Ser Val Cys Arg Asn Pro Glu Gln
        275                 280                 285

caa aca gag act gtg gtg cca tcc att gga aca tcg gac gtt tac tgt      912
Gln Thr Glu Thr Val Val Pro Ser Ile Gly Thr Ser Asp Val Tyr Cys
        290                 295                 300

aaa atg tgt gac ctt aac ttt gat gga gaa ttg ctt ttg gaa tac aaa      960
Lys Met Cys Asp Leu Asn Phe Asp Gly Glu Leu Leu Leu Glu Tyr Lys
305                 310                 315                 320

aga ctc tac gca tta ttt gat gac ttt gtt cct cct cgg tga            1002
Arg Leu Tyr Ala Leu Phe Asp Asp Phe Val Pro Pro Arg
                325                 330


<210>  44
<211>  333
<212>  PRT
<213>  Varicella zoster

<400>  44

Met His Leu Lys Pro Thr Arg Phe Phe His Ala Asn Gln Pro Pro Met
1                 5                 10                 15



Pro His Ser Tyr Glu Met Glu Asp Leu Cys Phe Asp Asp Met Gln Tyr
                20                 25                 30



Arg Trp Ser Pro Ser Asn Thr Pro Tyr Arg Ser Met Ser Arg Arg Tyr
        35                 40                 45
```

261

Lys Ser Val Ser Arg Ser Gly Pro Ser Met Arg Val Arg Ser Arg Thr
    50   55   60

Pro Cys Arg Arg Gln Thr Ile Arg Gly Lys Leu Met Ser Lys Glu Arg
65   70   75   80

Ser Val Tyr Arg His Tyr Phe Asn Tyr Ile Ala Arg Ser Pro Pro Glu
                85   90   95

Glu Leu Ala Thr Val Arg Gly Leu Ile Val Pro Ile Ile Lys Thr Thr
                100   105   110

Pro Val Thr Leu Pro Phe Asn Leu Gly Gln Thr Val Ala Asp Asn Cys
            115   120   125

Leu Ser Leu Ser Gly Met Gly Tyr His Leu Gly Leu Gly Gly Tyr Cys
    130   135   140

Pro Thr Cys Thr Ala Ser Gly Glu Pro Arg Leu Cys Arg Thr Asp Arg
145   150   155   160

Ala Ala Leu Ile Leu Ala Tyr Val Gln Gln Leu Asn Asn Ile Tyr Glu
                165   170   175

Tyr Arg Val Phe Leu Ala Ser Ile Leu Ala Leu Ser Asp Arg Ala Asn
            180   185   190

Met Gln Ala Ala Ser Ala Glu Pro Leu Leu Ser Ser Val Leu Ala Gln
    195   200   205

Pro Glu Leu Phe Phe Met Tyr His Ile Met Arg Glu Gly Gly Met Arg
    210   215   220

Asp Ile Arg Val Leu Phe Tyr Arg Asp Gly Asp Ala Gly Gly Phe Met
225   230   235   240

Met Tyr Val Ile Phe Pro Gly Lys Ser Val His Leu His Tyr Arg Leu
            245   250   255

Ile Asp His Ile Gln Ala Ala Cys Arg Gly Tyr Lys Ile Val Ala His
            260   265   270

262

Val Trp Gln Thr Thr Phe Leu Leu Ser Val Cys Arg Asn Pro Glu Gln
        275   280   285

Gln Thr Glu Thr Val Val Pro Ser Ile Gly Thr Ser Asp Val Tyr Cys
        290   295   300

Lys Met Cys Asp Leu Asn Phe Asp Gly Glu Leu Leu Leu Glu Tyr Lys
305   310   315   320

Arg Leu Tyr Ala Leu Phe Asp Asp Phe Val Pro Pro Arg
                325   330

<210>   45
<211>   1533
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS
<222>   (1)..(1533)

<400>   45
atg gat gct gac gac aca ccc ccc aac ctc caa ata tct cca act gca   48
Met Asp Ala Asp Asp Thr Pro Pro Asn Leu Gln Ile Ser Pro Thr Ala
1   5   10   15

gga cct ttg cgt tcc cac cac aat acc gac gga cat gaa cca aat gca   96
Gly Pro Leu Arg Ser His His Asn Thr Asp Gly His Glu Pro Asn Ala
            20   25   30

acc gca gcc gat cag caa gaa cga gaa tcc acc aac ccc aca cac gga   144
Thr Ala Ala Asp Gln Gln Glu Arg Glu Ser Thr Asn Pro Thr His Gly
        35   40   45

tgt gta aat cat cca tgg gcc aat ccg tca act gca aca tgc atg gaa   192
Cys Val Asn His Pro Trp Ala Asn Pro Ser Thr Ala Thr Cys Met Glu
    50   55   60

tca cca gaa cga tca caa cag aca agc tta ttt tta tta aag cac ggc   240
Ser Pro Glu Arg Ser Gln Gln Thr Ser Leu Phe Leu Leu Lys His Gly
65   70   75   80

tta acg aga gat cca ata cat caa cgc gaa agg gtg gac gtt ttt cca   288
Leu Thr Arg Asp Pro Ile His Gln Arg Glu Arg Val Asp Val Phe Pro
                85   90   95

caa ttt aac aaa ccc cca tgg gtt ttt aga att tcc aaa tta tcc cgt   336
Gln Phe Asn Lys Pro Pro Trp Val Phe Arg Ile Ser Lys Leu Ser Arg
            100   105   110

tta att gta ccc atc ttc acg ctc aat gaa cag tta tgt ttt tct aaa   384

263

```
Leu Ile Val Pro Ile Phe Thr Leu Asn Glu Gln Leu Cys Phe Ser Lys
        115                 120                 125

tta cag att cga gat aga ccc agg ttt gcg gga cgg gga acg tat ggg        432
Leu Gln Ile Arg Asp Arg Pro Arg Phe Ala Gly Arg Gly Thr Tyr Gly
        130                 135                 140

cgt gtt cat ata tac cca tcg tca aaa ata gct gta aaa acc atg gac        480
Arg Val His Ile Tyr Pro Ser Ser Lys Ile Ala Val Lys Thr Met Asp
145                 150                 155                 160

agt cgt gtt ttt aat aga gag tta att aac gcg att tta gcg agt gag        528
Ser Arg Val Phe Asn Arg Glu Leu Ile Asn Ala Ile Leu Ala Ser Glu
                165                 170                 175

ggt tct ata cga gca ggg gaa agg cta ggt att tct agc ata gtt tgc        576
Gly Ser Ile Arg Ala Gly Glu Arg Leu Gly Ile Ser Ser Ile Val Cys
                180                 185                 190

ctt tta ggt ttt tcg tta caa acc aaa cag cta ctg ttt ccg gca tac        624
Leu Leu Gly Phe Ser Leu Gln Thr Lys Gln Leu Leu Phe Pro Ala Tyr
                195                 200                 205

gac atg gat atg gat gaa tac att gtt cgc ctg tcc aga cgg ttg aca        672
Asp Met Asp Met Asp Glu Tyr Ile Val Arg Leu Ser Arg Arg Leu Thr
        210                 215                 220

ata cct gat cac ata gac aga aaa att gcc cat gta ttt tta gat ttg        720
Ile Pro Asp His Ile Asp Arg Lys Ile Ala His Val Phe Leu Asp Leu
225                 230                 235                 240

gct caa gcg ttg acg ttt tta aat cga acg tgc ggc ctg acc cac cta        768
Ala Gln Ala Leu Thr Phe Leu Asn Arg Thr Cys Gly Leu Thr His Leu
                245                 250                 255

gat gtg aaa tgt ggc aat att ttt ctt aac gtc gac aac ttt gcc tcg        816
Asp Val Lys Cys Gly Asn Ile Phe Leu Asn Val Asp Asn Phe Ala Ser
                260                 265                 270

ttg gaa ata acc aca gca gta atc gga gac tat agc cta gta aca tta        864
Leu Glu Ile Thr Thr Ala Val Ile Gly Asp Tyr Ser Leu Val Thr Leu
        275                 280                 285

aat acg tat tcc ctt tgt act cga gcg ata ttt gaa gtt gga aat cca        912
Asn Thr Tyr Ser Leu Cys Thr Arg Ala Ile Phe Glu Val Gly Asn Pro
        290                 295                 300

tcc cac ccg gag cac gta cta cgc gta ccc cgg gat gca tcg cag atg        960
Ser His Pro Glu His Val Leu Arg Val Pro Arg Asp Ala Ser Gln Met
305                 310                 315                 320

tca ttt cgt ttg gtg ttg agt cat gga aca aac caa ccc cct gaa atc       1008
Ser Phe Arg Leu Val Leu Ser His Gly Thr Asn Gln Pro Pro Glu Ile
                325                 330                 335

ttg ctt gat tat att aat gga acg ggc ctt act aaa tat act gga acc       1056
Leu Leu Asp Tyr Ile Asn Gly Thr Gly Leu Thr Lys Tyr Thr Gly Thr
```

264

```
                340                       345                          350

ttg ccc caa aga gtt gga ctt gcg att gat ctt tat gca ttg ggc caa    1104
Leu Pro Gln Arg Val Gly Leu Ala Ile Asp Leu Tyr Ala Leu Gly Gln
        355                 360                 365

gca ctc tta gaa gtt atc ctg cta gga cgt ctt ccc gga caa ctg ccc    1152
Ala Leu Leu Glu Val Ile Leu Leu Gly Arg Leu Pro Gly Gln Leu Pro
370                 375                 380

att tca gta cat cgg acc ccg cat tat cac tac tac ggt cat aag tta    1200
Ile Ser Val His Arg Thr Pro His Tyr His Tyr Tyr Gly His Lys Leu
385                 390                 395                 400

tca cca gat ttg gcg ctt gat acg ctg gca tat cga tgt gtc ctg gcg    1248
Ser Pro Asp Leu Ala Leu Asp Thr Leu Ala Tyr Arg Cys Val Leu Ala
                405                 410                 415

cca tat ata ctc cca tct gac atc ccc ggg gac tta aat tat aat ccc    1296
Pro Tyr Ile Leu Pro Ser Asp Ile Pro Gly Asp Leu Asn Tyr Asn Pro
                420                 425                 430

ttt ata cac gcc gga gag ctg aac acc cgt att tcc cgg aat tct tta    1344
Phe Ile His Ala Gly Glu Leu Asn Thr Arg Ile Ser Arg Asn Ser Leu
                435                 440                 445

cgc cgg ata ttc cag tgt cac gca gtg cgt tac ggc gta acg cac tca    1392
Arg Arg Ile Phe Gln Cys His Ala Val Arg Tyr Gly Val Thr His Ser
        450                 455                 460

aag ctt ttc gaa ggc ata cgc att ccg gcc tca tta tac cca gcc act    1440
Lys Leu Phe Glu Gly Ile Arg Ile Pro Ala Ser Leu Tyr Pro Ala Thr
465                 470                 475                 480

gtt gtt aca tcg ttg ttg tgt cac gat aat tca gaa ata cgc tcg gat    1488
Val Val Thr Ser Leu Leu Cys His Asp Asn Ser Glu Ile Arg Ser Asp
                485                 490                 495

cac cct tta tta tgg cac gat cgg gat tgg ata gga tcg aca taa        1533
His Pro Leu Leu Trp His Asp Arg Asp Trp Ile Gly Ser Thr
                500                 505                 510


<210>  46
<211>  510
<212>  PRT
<213>  Varicella zoster

<400>  46

Met Asp Ala Asp Asp Thr Pro Pro Asn Leu Gln Ile Ser Pro Thr Ala
1               5                   10                  15


Gly Pro Leu Arg Ser His His Asn Thr Asp Gly His Glu Pro Asn Ala
                20                  25                  30
```

265

Thr Ala Ala Asp Gln Gln Glu Arg Glu Ser Thr Asn Pro Thr His Gly
    35   40   45

Cys Val Asn His Pro Trp Ala Asn Pro Ser Thr Ala Thr Cys Met Glu
    50   55   60

Ser Pro Glu Arg Ser Gln Gln Thr Ser Leu Phe Leu Leu Lys His Gly
65   70   75   80

Leu Thr Arg Asp Pro Ile His Gln Arg Glu Arg Val Asp Val Phe Pro
            85   90   95

Gln Phe Asn Lys Pro Pro Trp Val Phe Arg Ile Ser Lys Leu Ser Arg
            100   105   110

Leu Ile Val Pro Ile Phe Thr Leu Asn Glu Gln Leu Cys Phe Ser Lys
        115   120   125

Leu Gln Ile Arg Asp Arg Pro Arg Phe Ala Gly Arg Gly Thr Tyr Gly
    130   135   140

Arg Val His Ile Tyr Pro Ser Ser Lys Ile Ala Val Lys Thr Met Asp
145   150   155   160

Ser Arg Val Phe Asn Arg Glu Leu Ile Asn Ala Ile Leu Ala Ser Glu
            165   170   175

Gly Ser Ile Arg Ala Gly Glu Arg Leu Gly Ile Ser Ser Ile Val Cys
            180   185   190

Leu Leu Gly Phe Ser Leu Gln Thr Lys Gln Leu Leu Phe Pro Ala Tyr
        195   200   205

Asp Met Asp Met Asp Glu Tyr Ile Val Arg Leu Ser Arg Arg Leu Thr
    210   215   220

Ile Pro Asp His Ile Asp Arg Lys Ile Ala His Val Phe Leu Asp Leu
225   230   235   240

Ala Gln Ala Leu Thr Phe Leu Asn Arg Thr Cys Gly Leu Thr His Leu
            245   250   255

266

Asp Val Lys Cys Gly Asn Ile Phe Leu Asn Val Asp Asn Phe Ala Ser
        260   265   270

Leu Glu Ile Thr Thr Ala Val Ile Gly Asp Tyr Ser Leu Val Thr Leu
        275   280   285

Asn Thr Tyr Ser Leu Cys Thr Arg Ala Ile Phe Glu Val Gly Asn Pro
290   295   300

Ser His Pro Glu His Val Leu Arg Val Pro Arg Asp Ala Ser Gln Met
305   310   315   320

Ser Phe Arg Leu Val Leu Ser His Gly Thr Asn Gln Pro Pro Glu Ile
            325   330   335

Leu Leu Asp Tyr Ile Asn Gly Thr Gly Leu Thr Lys Tyr Thr Gly Thr
            340   345   350

Leu Pro Gln Arg Val Gly Leu Ala Ile Asp Leu Tyr Ala Leu Gly Gln
        355   360   365

Ala Leu Leu Glu Val Ile Leu Leu Gly Arg Leu Pro Gly Gln Leu Pro
    370   375   380

Ile Ser Val His Arg Thr Pro His Tyr His Tyr Gly His Lys Leu
385   390   395   400

Ser Pro Asp Leu Ala Leu Asp Thr Leu Ala Tyr Arg Cys Val Leu Ala
            405   410   415

Pro Tyr Ile Leu Pro Ser Asp Ile Pro Gly Asp Leu Asn Tyr Asn Pro
        420   425   430

Phe Ile His Ala Gly Glu Leu Asn Thr Arg Ile Ser Arg Asn Ser Leu
        435   440   445

Arg Arg Ile Phe Gln Cys His Ala Val Arg Tyr Gly Val Thr His Ser
    450   455   460

Lys Leu Phe Glu Gly Ile Arg Ile Pro Ala Ser Leu Tyr Pro Ala Thr
465   470   475   480

Val Val Thr Ser Leu Leu Cys His Asp Asn Ser Glu Ile Arg Ser Asp

His Pro Leu Leu Trp His Asp Arg Asp Trp Ile Gly Ser Thr
            500   505   510

<210>   47
<211>   246
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS
<222>   (1)..(246)

<400>   47
atg gga caa tct tca tcc agc ggt cga gga gga atc tgt gga ttg tgc   48
Met Gly Gln Ser Ser Ser Ser Gly Arg Gly Gly Ile Cys Gly Leu Cys
1   5   10   15

aaa cgg tac aac gag ctt gtt acg tgc aac gga gaa acc gtt gct ttg   96
Lys Arg Tyr Asn Glu Leu Val Thr Cys Asn Gly Glu Thr Val Ala Leu
            20   25   30

aac tca gag ttc ttt gaa gac ttt gac ttt gat gag aat gta aca gag   144
Asn Ser Glu Phe Phe Glu Asp Phe Asp Phe Asp Glu Asn Val Thr Glu
        35   40   45

gac gcc gat aaa tcc aca caa cgc cgc cca cga gtg atc gat gta aca   192
Asp Ala Asp Lys Ser Thr Gln Arg Arg Pro Arg Val Ile Asp Val Thr
    50   55   60

cca aaa cga aaa cct tcg gga aag agc tcc cat tcc aaa tgc gca aaa   240
Pro Lys Arg Lys Pro Ser Gly Lys Ser Ser His Ser Lys Cys Ala Lys
65   70   75   80

tgt taa   246
Cys

<210>   48
<211>   81
<212>   PRT
<213>   Varicella zoster

<400>   48

Met Gly Gln Ser Ser Ser Ser Gly Arg Gly Gly Ile Cys Gly Leu Cys
1   5   10   15

Lys Arg Tyr Asn Glu Leu Val Thr Cys Asn Gly Glu Thr Val Ala Leu
            20   25   30

```
Asn Ser Glu Phe Phe Glu Asp Phe Asp Phe Asp Glu Asn Val Thr Glu
        35                  40                  45


Asp Ala Asp Lys Ser Thr Gln Arg Arg Pro Arg Val Ile Asp Val Thr
        50                  55                  60


Pro Lys Arg Lys Pro Ser Gly Lys Ser Ser His Ser Lys Cys Ala Lys
65                  70                  75                  80


Cys



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Met Lys Asn Pro Gln Lys Leu Ala Ile Thr Phe Leu Pro Leu Tyr Val
1               5                   10                  15

atc cca acg tac acg ttg tgt att aaa gca ttg tat aaa aac acg cat        96
Ile Pro Thr Tyr Thr Leu Cys Ile Lys Ala Leu Tyr Lys Asn Thr His
                20                  25                  30

gcg ggc ttg ctg ttc tca ttt cta ggt ttt gtc tta aat aca ccc gcc        144
Ala Gly Leu Leu Phe Ser Phe Leu Gly Phe Val Leu Asn Thr Pro Ala
            35                  40                  45

atg agc atc tct gga ccc cca acg acg ttt att tta tat agg tta cat        192
Met Ser Ile Ser Gly Pro Pro Thr Thr Phe Ile Leu Tyr Arg Leu His
        50                  55                  60

ggg gtt agg cgg gtt ctt cac tgg act tta ccg gat cat gaa caa aca        240
Gly Val Arg Arg Val Leu His Trp Thr Leu Pro Asp His Glu Gln Thr
65                  70                  75                  80

ctc tac gca ttt acg ggt ggg tca aga tca atg gcg gtg aag acg gac        288
Leu Tyr Ala Phe Thr Gly Gly Ser Arg Ser Met Ala Val Lys Thr Asp
                85                  90                  95

gct cga tgt gat aca atg agc ggt ggt atg atc gtc ctt caa cac acc        336
Ala Arg Cys Asp Thr Met Ser Gly Gly Met Ile Val Leu Gln His Thr
            100                 105                 110

cat aca gtg acc ctg cta acc ata gac tgt tct act gac ttt tca tca        384
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269

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His Thr Val Thr Leu Leu Thr Ile Asp Cys Ser Thr Asp Phe Ser Ser
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tac gca ttt acg cac cgg gat ttc cac tta cag gac aaa ccc cac gca        432
Tyr Ala Phe Thr His Arg Asp Phe His Leu Gln Asp Lys Pro His Ala
        130                 135                 140

aca ttt gcg atg ccg ttt atg tcc tgg gtc ggt tct gac cca aca tct        480
Thr Phe Ala Met Pro Phe Met Ser Trp Val Gly Ser Asp Pro Thr Ser
145                 150                 155                 160

cag ctg tac agt aat gtg ggg ggg gta cta tcc gta ata acg gaa gat        528
Gln Leu Tyr Ser Asn Val Gly Gly Val Leu Ser Val Ile Thr Glu Asp
                165                 170                 175

gac cta tcc atg tgt atc tca att gtt ata tac ggt tta cgg gta aac        576
Asp Leu Ser Met Cys Ile Ser Ile Val Ile Tyr Gly Leu Arg Val Asn
                180                 185                 190

aga cct gac gat cag acc aca cca aca cca acc ccg cac cag tat aca        624
Arg Pro Asp Asp Gln Thr Thr Pro Thr Pro Thr Pro His Gln Tyr Thr
        195                 200                 205

tcg caa agg cgg cag cct gaa acc aac tgt cct tct tca cca caa ccg        672
Ser Gln Arg Arg Gln Pro Glu Thr Asn Cys Pro Ser Ser Pro Gln Pro
        210                 215                 220

gcc ttt ttc aca tca gac gac gac gtt ctt tcg tta ata tta cgg gac        720
Ala Phe Phe Thr Ser Asp Asp Asp Val Leu Ser Leu Ile Leu Arg Asp
225                 230                 235                 240

gcc gca aac gcg taa                                                     735
Ala Ala Asn Ala
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1                   5                   10                  15


Ile Pro Thr Tyr Thr Leu Cys Ile Lys Ala Leu Tyr Lys Asn Thr His
                20                  25                  30


Ala Gly Leu Leu Phe Ser Phe Leu Gly Phe Val Leu Asn Thr Pro Ala
        35                  40                  45


Met Ser Ile Ser Gly Pro Pro Thr Thr Phe Ile Leu Tyr Arg Leu His
    50                  55                  60
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270

Gly Val Arg Arg Val Leu His Trp Thr Leu Pro Asp His Glu Gln Thr
65   70   75   80

Leu Tyr Ala Phe Thr Gly Gly Ser Arg Ser Met Ala Val Lys Thr Asp
                85   90   95

Ala Arg Cys Asp Thr Met Ser Gly Gly Met Ile Val Leu Gln His Thr
            100   105   110

His Thr Val Thr Leu Leu Thr Ile Asp Cys Ser Thr Asp Phe Ser Ser
            115   120   125

Tyr Ala Phe Thr His Arg Asp Phe His Leu Gln Asp Lys Pro His Ala
    130   135   140

Thr Phe Ala Met Pro Phe Met Ser Trp Val Gly Ser Asp Pro Thr Ser
145   150   155   160

Gln Leu Tyr Ser Asn Val Gly Gly Val Leu Ser Val Ile Thr Glu Asp
                165   170   175

Asp Leu Ser Met Cys Ile Ser Ile Val Ile Tyr Gly Leu Arg Val Asn
            180   185   190

Arg Pro Asp Asp Gln Thr Thr Pro Thr Pro Thr Pro His Gln Tyr Thr
            195   200   205

Ser Gln Arg Arg Gln Pro Glu Thr Asn Cys Pro Ser Ser Pro Gln Pro
    210   215   220

Ala Phe Phe Thr Ser Asp Asp Asp Val Leu Ser Leu Ile Leu Arg Asp
225   230   235   240

Ala Ala Asn Ala

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271

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274

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tccaccacag ggcccgaggt gatggtcacg ggctcggata cccgcctctt ggccttggaa    1980

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275

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276

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cagcgtcgag tcggttttaa gggaaaaggt tactacggcc ccaaggac atg ttt tgc   5577
                                                      Met Phe Cys
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acc tca ccg gct acg cgg ggc gac tcg tcc gag tca aaa ccc ggg gca   5625
Thr Ser Pro Ala Thr Arg Gly Asp Ser Ser Glu Ser Lys Pro Gly Ala
  5   10   15

tcg gtt gat gtt aac gga aag atg gaa tat gga tct gca cca gga ccc   5673
Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala Pro Gly Pro
20   25   30   35

ctg aac ggc cgg gat acg tcg cgg ggc ccc ggc gcg ttt tgt act ccg   5721
Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe Cys Thr Pro
                40   45   50

ggt tgg gag atc cac ccg gcc agg ctc gtt gag gac atc aac cgt gtt   5769
Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile Asn Arg Val
            55   60   65

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Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg Asp Ser Arg
        70   75   80

aga ttg cgg cgc ata tgc ctc gac ttt tat cta atg ggt cgc acc aga   5865
Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly Arg Thr Arg
    85   90   95

cag cgt ccc acg tta gcg tgc tgg gag gaa ttg tta cag ctt caa ccc   5913
Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln Leu Gln Pro
100   105   110   115

acc cag acg cag tgc tta cgc gct act tta atg gaa gtg tcc cat cga   5961
Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val Ser His Arg
                120   125   130

ccc cct cgg ggg gaa gac ggg ttc att gag gcg ccg aat gtt cct ttg   6009
Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn Val Pro Leu
                135   140   145

cat agg agc gca ctg gaa tgt gac gta tct gat gat ggt ggt gaa gac   6057
His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly Gly Glu Asp
        150   155   160

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277

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180                 185                 190                 195

gaa tca gag gag agc acc gat tct tgt gaa cca gac ggg gta ccc ggc    6201
Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly Val Pro Gly
                200                 205                 210

gat tgt tat cga gac ggg gat ggg tgc aac acc ccg tcc cca aag aga    6249
Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser Pro Lys Arg
            215                 220                 225

ccc cag cgt gcc atc gag cga tac gcg ggt gca gaa acc gcg gaa tat    6297
Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr Ala Glu Tyr
        230                 235                 240

aca gcc gcg aaa gcg ctc acc gcg ttg ggc gag ggg ggt gta gat tgg    6345
Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly Val Asp Trp
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aag cga cgt cga cac gaa gcc ccg cgc cgg cat gat ata ccg ccc ccc    6393
Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile Pro Pro Pro
260                 265                 270                 275

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His Gly Val


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                                                    Met Asn Leu
                                                        280

tgc gga tcc cgc ggt gag cac ccg ggc ggt gaa tat gcc gga ctt tac    6609
Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala Gly Leu Tyr
            285                 290                 295

tgc aca cga cac gat acc ccc gcg cac cag gct ctc atg aac gac gcc    6657
Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met Asn Asp Ala
        300                 305                 310

gaa cgg tac ttc gcc gcc gcg cta tgc gcc ata tct acc gag gcc tac    6705
Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr Glu Ala Tyr
    315                 320                 325

gag gct ttt ata cac agc ccc tcc gag aga ccg tgc gcg agt ttg tgg    6753
Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala Ser Leu Trp
330                 335                 340                 345

ggg agg gca aag gac gcc ttc gga cgg atg tgc ggg gag ctc gca gcg    6801
Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu Leu Ala Ala
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278

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Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser His Leu Glu
        380             385         390

ctc agc gag cgg ctg ata ttg atg gca tat tgg tgc tgt ttg gga cac    6945
Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys Leu Gly His
        395             400         405

gcc gga ctt ccg act att gga ttg tcg ccc gat aat aaa tgc atc cgc    6993
Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys Cys Ile Arg
410             415             420             425

gcc gaa tta tat gac cgc ccc ggg gga att tgt cac agg ctt ttt gac    7041
Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg Leu Phe Asp
                430             435             440

gcg tac ctg ggc tgc ggg tcc ctt gga gtc cca aga acc tac gag aga    7089
Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr Tyr Glu Arg
            445             450             455

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Ser


gataaaagcg tactgttttt tatttaaatt tacacgctcg gcgttgcccc ggttcggtga    7205

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ctgaagatgc attgccaagc taaacgtatc accaactgaa aatacatgcg agtggtaatt    8045
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279

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280

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caagaatgaa accatcggtg gatctgctat ggtctaaccg aacaagaagt acatacacac    9965

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281

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aaaaggtgtg gtattaaaca cttttaaact agcctgctgg ccttacaatc tggatttct   12244

atg gcc gga caa aac acc atg gag ggt gag gcc gtg gcc tta ctg atg   12292
Met Ala Gly Gln Asn Thr Met Glu Gly Glu Ala Val Ala Leu Leu Met
    460   465   470

gaa gcg gtg gta acc ccg cga gcg caa cca aat aat aca acg ata aca   12340
Glu Ala Val Val Thr Pro Arg Ala Gln Pro Asn Asn Thr Thr Ile Thr
475   480   485   490

gcc ata caa ccg agc cgt tcg gct gaa aag tgt tat tat agt gat agc   12388
Ala Ile Gln Pro Ser Arg Ser Ala Glu Lys Cys Tyr Tyr Ser Asp Ser
            495   500   505

gaa aat gaa acg gca gat gaa ttt ttg cgt cga att gga aaa tat caa   12436
Glu Asn Glu Thr Ala Asp Glu Phe Leu Arg Arg Ile Gly Lys Tyr Gln
            510   515   520

cat aaa ata tat cat cgt aaa aaa ttc tgt tat att acg cta ata att   12484
His Lys Ile Tyr His Arg Lys Lys Phe Cys Tyr Ile Thr Leu Ile Ile
            525   530   535

gtc ttt gta ttt gct atg acg gga gcg gcc ttt gcc ttg gga tat ata   12532
Val Phe Val Phe Ala Met Thr Gly Ala Ala Phe Ala Leu Gly Tyr Ile
            540   545   550

acg tca caa ttt gtt gga taa gtggacgatt cgaggactc ggaatctacg   12583
Thr Ser Gln Phe Val Gly
555   560

gatacggaag aagagtttgg taacgcgatt ggagggagtc acgggggttc gagttacacg   12643

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282

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gatccgcaga gattcatacc acacggcccg tgtggggacc ccgtgggtta atggagacgt   13363

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tatatagaaa gaaagtgcga acggtggttg gacacatgcc aaaacatgaa aacccataca   14743

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gcgagagcgt ttggaaaact cgggtacgtc taaattcacc ccagtgcg atg gat acg   15760
                                                          Met Asp Thr


ccg ccg atg cag cgc tct aca ccc caa cgc gcg ggg tcg cct gat act      15808
Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser Pro Asp Thr
   565                 570                 575

ttg gag tta atg gac ctg ttg gac gcg gcc gcg gcg gcc gcc gaa cac      15856
Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala Ala Glu His
580                 585                 590                 595

agg gcc cgg gtg gtc acc tcg agt cag cct gac gat cta cta ttt gga      15904
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284

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Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu Leu Phe Gly
            600             605             610

gag aac ggg gtc atg gtg gga cgg gaa cac gag atc gtt tca att ccc    15952
Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val Ser Ile Pro
            615             620             625

tcc gta tcg gga ctt caa cca gaa ccc aga acg gaa gat gtt ggc gaa    16000
Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp Val Gly Glu
            630             635             640

gag cta aca caa gac gac tac gta tgc gag gac ggt cag gat cta atg    16048
Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln Asp Leu Met
            645             650             655

ggc tcg cct gta atc ccg ctg gcc gag gtc ttc cac acc cga ttc tcg    16096
Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr Arg Phe Ser
660             665             670             675

gag gcc ggc gcg cga gaa cca aca gga gcc gat cgc tcc ctt gag aca    16144
Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser Leu Glu Thr
            680             685             690

gtc tct ctc gga acg aag ctt gct agg tct cca aaa cca ccg atg aac    16192
Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro Pro Met Asn
            695             700             705

gat ggg gaa acg ggc aga ggt acg acc cct ccg ttc ccg cag gcc ttc    16240
Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro Gln Ala Phe
            710             715             720

tcc cct gta tcc ccc gcg tct cct gtt gga gac gcc gcc ggg aac gat    16288
Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala Gly Asn Asp
            725             730             735

caa cgg gaa gac cag cgg tct ata ccc cga caa acg acg aga gga aat    16336
Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr Arg Gly Asn
740             745             750             755

tca cca ggt ttg ccg tcg gtg gtc cat cga gac aga caa act cag tcc    16384
Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln Thr Gln Ser
            760             765             770

atc tcg ggt aaa aag ccg ggc gat gag caa gcg ggt cat gcg cat gca    16432
Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His Ala His Ala
            775             780             785

tcg ggg gac gga gta gtt ctc cag aaa act caa cgg ccc gct cag gga    16480
Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro Ala Gln Gly
            790             795             800

aag agc ccg aag aaa aag act ttg aag gtt aag gtc cca ctc ccg gcg    16528
Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro Leu Pro Ala
            805             810             815

cgg aaa ccc ggt gga cct gta ccc ggc ccg gtt gag caa ttg tac cac    16576
Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln Leu Tyr His
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285

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gtc ctt tcg gac agc gtt ccc gct aag ggg gca aag gcg gac ctg ccg    16624
Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala Asp Leu Pro
            840                     845                     850

ttt gag acc gat gat acc cgc cca agg aaa cat gat gcc cgg ggt ata    16672
Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala Arg Gly Ile
            855                     860                     865

aca cct cgc gtc cct gga cgt tcg tcg ggg ggc aaa cct aga gcg ttt    16720
Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro Arg Ala Phe
            870                     875                     880

ttg gcc ctg ccg gga aga tcc cac gca cca gac ccg att gag gat gac    16768
Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile Glu Asp Asp
        885                     890                     895

agc cca gtg gag aaa aag cca aag agt cgt gag ttt gtt tcg tct tca    16816
Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val Ser Ser Ser
900                     905                     910                     915

tcc tct tcc tcg tcg tgg gga tcg tca tcg gag gat gaa gac gat gaa    16864
Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu Asp Asp Glu
            920                     925                     930

ccc cgg cgc gtt tcg gtg gga agt gaa act aca ggc agc agg tcc gga    16912
Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser Arg Ser Gly
            935                     940                     945

cgc gaa cac gcc cct tcc ccg tca aat tcg gat gat tcg gac tca aat    16960
Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser Asp Ser Asn
        950                     955                     960

gat ggt ggg tcg acg aaa caa aat atc caa ccg gga tat cga tcc atc    17008
Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr Arg Ser Ile
        965                     970                     975

agc ggt ccc gat ccg agg att cgt aag acc aaa cgt ctt gcg ggg gaa    17056
Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu Ala Gly Glu
980                     985                     990                     995

ccg ggg cgc cag aga  cag aaa tca ttt tcc  ctg ccg cga tcc aga    17101
Pro Gly Arg Gln Arg  Gln Lys Ser Phe Ser  Leu Pro Arg Ser Arg
                1000                    1005                    1010

acc ccg ata att ccc  ccg gtg tcg ggg ccg  ctc atg atg ccc gac    17146
Thr Pro Ile Ile Pro  Pro Val Ser Gly Pro  Leu Met Met Pro Asp
                1015                    1020                    1025

gga agc cct tgg ccc  gga tcg gca ccc ctc  cca tcc aac agg gtg    17191
Gly Ser Pro Trp Pro  Gly Ser Ala Pro Leu  Pro Ser Asn Arg Val
                1030                    1035                    1040

cgg ttt gga ccg tcc  ggg gag acc aga gag  ggt cac tgg gag gat    17236
Arg Phe Gly Pro Ser  Gly Glu Thr Arg Glu  Gly His Trp Glu Asp
                1045                    1050                    1055
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gag gct gtg aga gcg  gcg cgg gct cgt tac  gag gcc tca acg gaa      17281
Glu Ala Val Arg Ala  Ala Arg Ala Arg Tyr  Glu Ala Ser Thr Glu
            1060                  1065                  1070

ccc gtg ccg ctt tac  gtg ccg gag ttg gga  gat ccg gct aga cag      17326
Pro Val Pro Leu Tyr  Val Pro Glu Leu Gly  Asp Pro Ala Arg Gln
            1075                  1080                  1085

tac cgc gcg ctg att  aac ctg atc tac tgt  cca gac aga gac cct      17371
Tyr Arg Ala Leu Ile  Asn Leu Ile Tyr Cys  Pro Asp Arg Asp Pro
            1090                  1095                  1100

ata gca tgg ctc cag  aac ccc aag ctg acc  ggt gtc aac tcg gcc      17416
Ile Ala Trp Leu Gln  Asn Pro Lys Leu Thr  Gly Val Asn Ser Ala
            1105                  1110                  1115

ctg aac cag ttc tac  caa aag ctg ttg cca  ccg gga cgg gcg ggt      17461
Leu Asn Gln Phe Tyr  Gln Lys Leu Leu Pro  Pro Gly Arg Ala Gly
            1120                  1125                  1130

acc gcc gtt acg ggg  agc gta gcg tct ccc  gtt ccg cat gta ggc      17506
Thr Ala Val Thr Gly  Ser Val Ala Ser Pro  Val Pro His Val Gly
            1135                  1140                  1145

gaa gcc atg gcc acg  ggg gag gcc ctc tgg  gct ctc ccc cac gcg      17551
Glu Ala Met Ala Thr  Gly Glu Ala Leu Trp  Ala Leu Pro His Ala
            1150                  1155                  1160

gcc gcg gcc gtg gct  atg agc cgt cga tac  gac cgg gcc caa aaa      17596
Ala Ala Ala Val Ala  Met Ser Arg Arg Tyr  Asp Arg Ala Gln Lys
            1165                  1170                  1175

cac ttt atc cta cag  agt ctc cgc aga gcc  ttt gcc agc atg gca      17641
His Phe Ile Leu Gln  Ser Leu Arg Arg Ala  Phe Ala Ser Met Ala
            1180                  1185                  1190

tac ccc gag gca acg  ggc tcc agt ccg gcg  gcg cgg atc tcc cgc      17686
Tyr Pro Glu Ala Thr  Gly Ser Ser Pro Ala  Ala Arg Ile Ser Arg
            1195                  1200                  1205

ggt cac cct tct cca  aca acc ccg gcc aca  cag gct ccc gac cct      17731
Gly His Pro Ser Pro  Thr Thr Pro Ala Thr  Gln Ala Pro Asp Pro
            1210                  1215                  1220

cag ccg tcg gcc gcc  gca cgc tct ctt tct  gtg tgt cca ccg gat      17776
Gln Pro Ser Ala Ala  Ala Arg Ser Leu Ser  Val Cys Pro Pro Asp
            1225                  1230                  1235

gat cgt tta cga act  ccg cgc aag cgc aag  tcc cag cca gtc gag      17821
Asp Arg Leu Arg Thr  Pro Arg Lys Arg Lys  Ser Gln Pro Val Glu
            1240                  1245                  1250

agc aga agc ctc ctc  gac aag att agg gag  aca ccc gtc gcg gac      17866
Ser Arg Ser Leu Leu  Asp Lys Ile Arg Glu  Thr Pro Val Ala Asp
            1255                  1260                  1265
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gcc cgg gtt gca gac  gat cat gtg gtt tcc  aag gcc aag agg cgg       17911
Ala Arg Val Ala Asp  Asp His Val Val Ser  Lys Ala Lys Arg Arg
                1270                 1275                 1280

gta tcc gag ccc gtg  acc atc acc tcg ggc  cct gtg gtg gat ccc       17956
Val Ser Glu Pro Val  Thr Ile Thr Ser Gly  Pro Val Val Asp Pro
                1285                 1290                 1295

ccc gcc gta ata acg  atg cca ctt gac gga  ccg gcc cca aac ggg       18001
Pro Ala Val Ile Thr  Met Pro Leu Asp Gly  Pro Ala Pro Asn Gly
                1300                 1305                 1310

gga ttt cgg cgt att  ccc cgg ggg gcc ctg  cat acc ccg gtc ccg       18046
Gly Phe Arg Arg Ile  Pro Arg Gly Ala Leu  His Thr Pro Val Pro
                1315                 1320                 1325

tcg gac cag gct cgc  aag gcg tac tgt acc  ccc gaa acc atc gcc       18091
Ser Asp Gln Ala Arg  Lys Ala Tyr Cys Thr  Pro Glu Thr Ile Ala
                1330                 1335                 1340

cgt ctg gtc gac gac  cca ttg ttt ccc acg  gcc tgg cgc cct gcg       18136
Arg Leu Val Asp Asp  Pro Leu Phe Pro Thr  Ala Trp Arg Pro Ala
                1345                 1350                 1355

cta agc ttt gat ccc  ggc gcc ttg gcg gaa  atc gcc gct cgg cgt       18181
Leu Ser Phe Asp Pro  Gly Ala Leu Ala Glu  Ile Ala Ala Arg Arg
                1360                 1365                 1370

ccg ggc gga gga gac  cga cgg ttt ggt cca  ccc agc gga gtg gag       18226
Pro Gly Gly Gly Asp  Arg Arg Phe Gly Pro  Pro Ser Gly Val Glu
                1375                 1380                 1385

gcg ctg cga cgg agg  tgc gcc tgg atg cgg  cag atc cca gac ccg       18271
Ala Leu Arg Arg Arg  Cys Ala Trp Met Arg  Gln Ile Pro Asp Pro
                1390                 1395                 1400

gag gat gtg agg ctt  ctg atc atc tac gat  ccg ttg ccc gga gag       18316
Glu Asp Val Arg Leu  Leu Ile Ile Tyr Asp  Pro Leu Pro Gly Glu
                1405                 1410                 1415

gac atc aac ggc ccc  ctc gag agc acc ctc  gcg aca gat ccg gga       18361
Asp Ile Asn Gly Pro  Leu Glu Ser Thr Leu  Ala Thr Asp Pro Gly
                1420                 1425                 1430

ccg tca tgg agt cca  tcc cga ggg gga ctg  tct gtg gtc ctg gca       18406
Pro Ser Trp Ser Pro  Ser Arg Gly Gly Leu  Ser Val Val Leu Ala
                1435                 1440                 1445

gcc ctg agt aac cgg  ttg tgc ctg ccg agc  act cat gcc tgg gcc       18451
Ala Leu Ser Asn Arg  Leu Cys Leu Pro Ser  Thr His Ala Trp Ala
                1450                 1455                 1460

ggg aac tgg acc ggc  ccg ccg gac gtg tcc  gct ttg aac gcc cgg       18496
Gly Asn Trp Thr Gly  Pro Pro Asp Val Ser  Ala Leu Asn Ala Arg
                1465                 1470                 1475

ggc gtt tta tta ctg  tcg acc cga gac ctg  gcc ttt gcc ggg gcc       18541
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Gly Val Leu Leu Leu  Ser Thr Arg Asp Leu  Ala Phe Ala Gly Ala
                1480            1485               1490

gtc gag tat cta ggc  tcg cgg ttg gcc tct  gcc cgg cgc cgg ttg    18586
Val Glu Tyr Leu Gly  Ser Arg Leu Ala Ser  Ala Arg Arg Arg Leu
                1495            1500               1505

ctg gtg ttg gac gcg  gtg gcc ctc gag agg  tgg ccc agg gat gga    18631
Leu Val Leu Asp Ala  Val Ala Leu Glu Arg  Trp Pro Arg Asp Gly
                1510            1515               1520

ccc gct ttg tct cag  tat cac gtg tac gtc  cgg gcc ccg gcg cga    18676
Pro Ala Leu Ser Gln  Tyr His Val Tyr Val  Arg Ala Pro Ala Arg
                1525            1530               1535

ccg gac gcc cag gcc  gtc gtc cga tgg cca  gac tcg gcg gtc aca    18721
Pro Asp Ala Gln Ala  Val Val Arg Trp Pro  Asp Ser Ala Val Thr
                1540            1545               1550

gaa gga ctc gcc cgg  gcc gtg ttt gca tcg  tcg cgc acc ttt ggg    18766
Glu Gly Leu Ala Arg  Ala Val Phe Ala Ser  Ser Arg Thr Phe Gly
                1555            1560               1565

cca gcg agt ttt gct  cgt atc gag act gcg  ttt gcc aac ctg tac    18811
Pro Ala Ser Phe Ala  Arg Ile Glu Thr Ala  Phe Ala Asn Leu Tyr
                1570            1575               1580

ccg ggc gaa caa ccc  ctg tgt ttg tgc cgc  ggt ggg aac gtc gca    18856
Pro Gly Glu Gln Pro  Leu Cys Leu Cys Arg  Gly Gly Asn Val Ala
                1585            1590               1595

tac acc gtg tgt acc  cgc gcg ggc ccc aag  acc cgc gtc ccc ctg    18901
Tyr Thr Val Cys Thr  Arg Ala Gly Pro Lys  Thr Arg Val Pro Leu
                1600            1605               1610

tcg ccc cgt gaa tac  cgg cag tac gtg ctg  ccg ggt ttt gac ggt    18946
Ser Pro Arg Glu Tyr  Arg Gln Tyr Val Leu  Pro Gly Phe Asp Gly
                1615            1620               1625

tgc aag gac ctc gcg  cga cag tct cgg ggt  ctg ggg ctc ggg gca    18991
Cys Lys Asp Leu Ala  Arg Gln Ser Arg Gly  Leu Gly Leu Gly Ala
                1630            1635               1640

gcc gac ttt gtg gac  gag gcg gca cat agc  cac cgc gca gca aac    19036
Ala Asp Phe Val Asp  Glu Ala Ala His Ser  His Arg Ala Ala Asn
                1645            1650               1655

cga tgg ggc ctg ggt  gcc gcg ctt cga ccc  gtc ttc ctt ccc gag    19081
Arg Trp Gly Leu Gly  Ala Ala Leu Arg Pro  Val Phe Leu Pro Glu
                1660            1665               1670

gga cgg aga ccg ggg  gcc gcc ggg ccg gag  gcc ggc gac gta ccc    19126
Gly Arg Arg Pro Gly  Ala Ala Gly Pro Glu  Ala Gly Asp Val Pro
                1675            1680               1685

acc tgg gcg agg gtg  ttt tgc cgc cac gcc  ctg ctg gaa ccc gac    19171
Thr Trp Ala Arg Val  Phe Cys Arg His Ala  Leu Leu Glu Pro Asp
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                 1690                      1695                      1700

cct gcc gca gaa cca   ctc gtg ctt cca ccc   gtg gcc ggt cgg tcg         19216
Pro Ala Ala Glu Pro   Leu Val Leu Pro Pro   Val Ala Gly Arg Ser
                1705                      1710                      1715

gtg gcg ctg tat gcg   tcg gcg gac gag gct   cgg aat gcc ctc ccc         19261
Val Ala Leu Tyr Ala   Ser Ala Asp Glu Ala   Arg Asn Ala Leu Pro
                1720                      1725                      1730

ccg att ccc aga gta   atg tgg ccg ccc ggt   ttt ggg gcc gcg gag         19306
Pro Ile Pro Arg Val   Met Trp Pro Pro Gly   Phe Gly Ala Ala Glu
                1735                      1740                      1745

acg gtg ttg gag ggg   agc gac gga aca cgg   ttc gtg ttc gga cac         19351
Thr Val Leu Glu Gly   Ser Asp Gly Thr Arg   Phe Val Phe Gly His
                1750                      1755                      1760

cac ggg ggc tcg gaa   cgg ccg tca gaa acc   cag gcg ggg cga cag         19396
His Gly Gly Ser Glu   Arg Pro Ser Glu Thr   Gln Ala Gly Arg Gln
                1765                      1770                      1775

cgg cgc acc gca gac   gac aga gaa cac gct   ttg gag ctg gac gat         19441
Arg Arg Thr Ala Asp   Asp Arg Glu His Ala   Leu Glu Leu Asp Asp
                1780                      1785                      1790

tgg gag gtg ggg tgt   gaa gac gcg tgg gac   agc gag gag ggg ggc         19486
Trp Glu Val Gly Cys   Glu Asp Ala Trp Asp   Ser Glu Glu Gly Gly
                1795                      1800                      1805

ggg gac gac ggg gac   gca ccg ggg tca tcc   ttt ggg gtg agc atc         19531
Gly Asp Asp Gly Asp   Ala Pro Gly Ser Ser   Phe Gly Val Ser Ile
                1810                      1815                      1820

gtg tcg gtg gcc ccg   ggt gtg ctg cga gac   cgc cgg gtg ggt ttg         19576
Val Ser Val Ala Pro   Gly Val Leu Arg Asp   Arg Arg Val Gly Leu
                1825                      1830                      1835

cgc ccg gcg gtc aag   gtg gag ctg ttg tcc   tcg tcc tcg tcc tcc         19621
Arg Pro Ala Val Lys   Val Glu Leu Leu Ser   Ser Ser Ser Ser Ser
                1840                      1845                      1850

gag gac gag gac gat   gtg tgg gga ggg cgc   ggg ggg agg agc ccc         19666
Glu Asp Glu Asp Asp   Val Trp Gly Gly Arg   Gly Gly Arg Ser Pro
                1855                      1860                      1865

ccg cag agt cgg ggg   tga cggagtcccc tccttttctc gtgagcgcca              19714
Pro Gln Ser Arg Gly
                1870

ctggcgcgcg gactgtttgt tgttaataaa agcggaacgg tttttatgaa aaaagtgtct       19774

gtctgtctgt gcgggcgggc gacgggcggg ctggtcggac cccccccga aaataacccc        19834

cccccggttt ctgggcgccc ggcggacccc gggagaggag gccagccctc tcgcggcccc       19894

ctcgagagag aaaaaaaaaa gcgaccccac ctccccgcgc gtttgcgggg cgaccatcgg       19954
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gggggacttg cattaccta tcccagtatt gtttgtacgc ctctaatgga gtaactgtcc   20014

caatacaccc gacttcctat atacagtgct tttgtttgtg gacttacctt tatttacggg   20074

tattacaggg gggtggagaa atgtcttcgt atcgctcttt atctaaataa agacagaatc   20134

taaaatgtca cttagctgta tacccggccc aaggttatac caatcaactt ccctgtttgt   20194

tgggactgtc cgcctacccc aatacacatt ttatacccac gttttagtgg gtgggactta   20254

aaagaaatgg gtggagggat atagggggtgt gtcttcgttg gtaccaatta taaaaatgta   20314

ctcgccacaa ctcacaattt agaacgcatg gcagttctgc tacgtgtttg gatgcccgga   20374

cattagaata cagccagttg ttacc atg gat acc ata tta  gcg ggc ggt agc   20426
                              Met Asp Thr Ile Leu  Ala Gly Gly Ser
                                                   1875

ggc  acc tcc gac gct tcg  gat aat acc tgc acc  ata tgc atg agc      20471
Gly  Thr Ser Asp Ala Ser  Asp Asn Thr Cys Thr  Ile Cys Met Ser
1880                1885                 1890

acc  gtt tcc gat ctc gga  aaa acc atg ccg tgt  ttg cac gac ttc      20516
Thr  Val Ser Asp Leu Gly  Lys Thr Met Pro Cys  Leu His Asp Phe
1895                1900                 1905

tgc  ttt gtt tgt att cgg  gca tgg acc tcc acc  agc gtc cag tgt      20561
Cys  Phe Val Cys Ile Arg  Ala Trp Thr Ser Thr  Ser Val Gln Cys
1910                1915                 1920

cct  ctc tgc cgg tgt cca  gtg caa tcc atc ctg  cat aag atc gta      20606
Pro  Leu Cys Arg Cys Pro  Val Gln Ser Ile Leu  His Lys Ile Val
1925                1930                 1935

agt  gat aca agt tac aag  gaa tat gaa gtg cac  cca tcc gac gac      20651
Ser  Asp Thr Ser Tyr Lys  Glu Tyr Glu Val His  Pro Ser Asp Asp
1940                1945                 1950

gat  ggt ttt tct gag ccg  tca ttt gaa gat tcc  atc gac atc cta      20696
Asp  Gly Phe Ser Glu Pro  Ser Phe Glu Asp Ser  Ile Asp Ile Leu
1955                1960                 1965

ccg  gga gat gtc ata gat  ctt ctg cca cca agc  cca gga ccg agt      20741
Pro  Gly Asp Val Ile Asp  Leu Leu Pro Pro Ser  Pro Gly Pro Ser
1970                1975                 1980

cgg  gag tcc atc caa cag  cca aca tca aga tcg  agt cgg gag ccc      20786
Arg  Glu Ser Ile Gln Gln  Pro Thr Ser Arg Ser  Ser Arg Glu Pro
1985                1990                 1995

att  caa tca cca aac cct  ggg ccc ctt caa tcg  tcg gct aga gag      20831
Ile  Gln Ser Pro Asn Pro  Gly Pro Leu Gln Ser  Ser Ala Arg Glu
2000                2005                 2010

ccc  aca gca gag tca cca  agt gac tct caa cag  gat tct ata caa      20876
Pro  Thr Ala Glu Ser Pro  Ser Asp Ser Gln Gln  Asp Ser Ile Gln
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cca ccg acc cga gac tcg  agc cct ggt gta acc  aaa aca tgc tct    20921
Pro Pro Thr Arg Asp Ser  Ser Pro Gly Val Thr  Lys Thr Cys Ser
2030                2035                2040

acc gca tca ttt tta cgg  aag gta ttt ttt aaa  gac caa cct gct    20966
Thr Ala Ser Phe Leu Arg  Lys Val Phe Phe Lys  Asp Gln Pro Ala
2045                2050                2055

gtt cga tcg gcg acc ccg  gtg gtg tat ggc tcg  att gaa tct gca    21011
Val Arg Ser Ala Thr Pro  Val Val Tyr Gly Ser  Ile Glu Ser Ala
2060                2065                2070

cag caa ccc cgg acc ggg  ggg cag gac tac cgt  gat cgt cca gta    21056
Gln Gln Pro Arg Thr Gly  Gly Gln Asp Tyr Arg  Asp Arg Pro Val
2075                2080                2085

tct gtg gga att aat caa  gac cca cga acc atg  gac aga ctg cct    21101
Ser Val Gly Ile Asn Gln  Asp Pro Arg Thr Met  Asp Arg Leu Pro
2090                2095                2100

ttt cga gcc acg gat aga  gga aca gag gga aac  gcg aga ttc ccg    21146
Phe Arg Ala Thr Asp Arg  Gly Thr Glu Gly Asn  Ala Arg Phe Pro
2105                2110                2115

tgt tac atg caa cct tta  ctc gga tgg ctt gat  gat caa ctt gcg    21191
Cys Tyr Met Gln Pro Leu  Leu Gly Trp Leu Asp  Asp Gln Leu Ala
2120                2125                2130

gaa ctg tat caa ccc gaa  att gta gag cct aca  aaa atg ttg ata    21236
Glu Leu Tyr Gln Pro Glu  Ile Val Glu Pro Thr  Lys Met Leu Ile
2135                2140                2145

tta aac tat ata ggt att  tac ggg cgt gat gag  gcg gga tta aaa    21281
Leu Asn Tyr Ile Gly Ile  Tyr Gly Arg Asp Glu  Ala Gly Leu Lys
2150                2155                2160

aca tcc ctg cgt tgt ctt  ttg cat gat tca aca  gga ccg ttt gta    21326
Thr Ser Leu Arg Cys Leu  Leu His Asp Ser Thr  Gly Pro Phe Val
2165                2170                2175

aca aac atg tta ttc ttg  ttg gat cga tgt acc  gat cca acc cgc    21371
Thr Asn Met Leu Phe Leu  Leu Asp Arg Cys Thr  Asp Pro Thr Arg
2180                2185                2190

cta acc atg caa acc tgg  acc tgg aaa gat aca  gcc atc caa cta    21416
Leu Thr Met Gln Thr Trp  Thr Trp Lys Asp Thr  Ala Ile Gln Leu
2195                2200                2205

att aca ggt cca att gta  aga cca gaa acc acc  tca acc ggg gag    21461
Ile Thr Gly Pro Ile Val  Arg Pro Glu Thr Thr  Ser Thr Gly Glu
2210                2215                2220

acc tct cgt ggc gat gaa  agg gat acc cga ttg  gta aat aca ccc    21506
Thr Ser Arg Gly Asp Glu  Arg Asp Thr Arg Leu  Val Asn Thr Pro
2225                2230                2235
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caa   aaa gtc agg ctt ttt  tct gtg tta ccg ggg  att aaa ccg gga    21551
Gln   Lys Val Arg Leu Phe  Ser Val Leu Pro Gly  Ile Lys Pro Gly
2240                  2245              2250

agc   gca agg ggt gct aag  cgc cgt tta ttt cat  acc ggc aga gac    21596
Ser   Ala Arg Gly Ala Lys  Arg Arg Leu Phe His  Thr Gly Arg Asp
2255                  2260              2265

gtt   aaa cga tgc tta aca  ata gac ctg aca tct  gag tct gat tcg    21641
Val   Lys Arg Cys Leu Thr  Ile Asp Leu Thr Ser  Glu Ser Asp Ser
2270                  2275              2280

gca   tgt aag gga agt aaa  acc cgc aaa gtt gcc  tct cca cag ggg    21686
Ala   Cys Lys Gly Ser Lys  Thr Arg Lys Val Ala  Ser Pro Gln Gly
2285                  2290              2295

gag   tcc aat acc ccc tcc  acc tcc gga tca aca  tca ggt tca ctg    21731
Glu   Ser Asn Thr Pro Ser  Thr Ser Gly Ser Thr  Ser Gly Ser Leu
2300                  2305              2310

aaa   cac ctt acc aaa aaa  agc tct gcc ggt aaa  gcg ggt aaa ggt    21776
Lys   His Leu Thr Lys Lys  Ser Ser Ala Gly Lys  Ala Gly Lys Gly
2315                  2320              2325

att   cca aac aag atg aag  aag tcc tag tttgttggga gggggaagga       21823
Ile   Pro Asn Lys Met Lys  Lys Ser
2330                  2335

aatgccttaa acatccacag tctgctttat taccaactgt atgtaaatta tgatcattaa   21883

acgtgcattt taaaaatacc tgagtgttgc tattggtcgt aagggttggt atatctggaa   21943

cccaaggtgt aaatactgcc ccctggtaag tccgtacacg attcggaatg cccgcaatcc   22003

ggtctcggag taaccggggc atcctgctct gcaaatacaa taaacataac agtctaacag   22063

tacgcatgtg ctgtcgtaag cgctccgccc taaattacaa aaatttgaga ttacgctcaa   22123

tacttgtcac cgtttgtatt tatacacctc tacgggagca aactaaaggt atacttggag   22183

atgcaaccaa ggccgagttg agacgggaaa attagaagct gttttccag cggcaaaaat    22243

catccggttt gggtatgtct tatagcaatt aaagttatta aaatggccgg aaggtggcgg   22303

gggtggtgaa ggcgagggta aagcaaactt gcggggggat aaaaggcata tatgttacaa   22363

aatacgcacg caaatataaa ttttagtttt gtacttacag taaaggcaac ggtgtttcg    22423

gtttaggcag ccggacccgt ttaaaatgcc aactggatag tctgcaagga ggaaacgctg   22483

ctgcaatgag tcaggttttt aggtgaatta ggtatgatgc atcatttttg ttaatggact   22543

tttaatggat tgaaacggat agaaggaaac gtgtagcata atggatattg gttgatattt   22603

taagcacgct gccaagtacg cactaagaat gcttagaaat atttaaactg aaatgcgtgg   22663
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gtttggcaaa cgttaccgta aatcaatctc agatccaagg gataatggcc gttgggcagg 22723

cctccaaaag gcaatttgag cgttttaagt ttggggtacg tttttaaagc ttgattggca 22783

aacgttaccg caaatcaatc ttagatccaa gggataatgg ccgttgggca ggcctccaaa 22843

aggcaatttg agcgttttca gtccgcttga aaacggtcta agtatttgcc gtaaatgacc 22903

gcgagaggta taatataaac atctgttttc ccgatgacgt gttaagaaaa gtgattatat 22963

cagataacgg gggactgtaa agcttaatac gtgacatgtg attgggtgta taaatactac 23023

atccaaatct tgcatggaaa ttcgctttgt cggcacgccg tgacgtttga catattaaga 23083

tcgccctttt taggaaaatg agatatgaca ccaagagttt aactaaaggc caactgtata 23143

tataaaactc atacttgtcc atgcttccat tagagtggtc aagttttttca aaggatacga 23203

caacgtcgta gtgaagggaa aacacaagcg tcatggcatc acataaatgg ttactgcaga 23263

tagtttttttt aaaaactatc acaatcgcgt attgtcttca tctccaagac gacactccgt 23323

tgttttttgg agccaaaccg ctatcggatg tgagtttgat tataacggaa ccgtgcgtgt 23383

catcggtata tgaggcgtgg gactatgcgg cacccccggt atcaaacctc agcgaggcgc 23443

tatcgggaat cgtggttaag acaaaatgtc cagtaccgga agttatactt tggtttaaag 23503

acaaacaaat ggcgtactgg acaaatccat acgtcacctt aaaggggctg gcacaatctg 23563

ttggtgaaga acataaaagc ggggacatac gcgatgcttt gttggatgcc ctttccggtg 23623

tatgggtaga ctctactcca tcttccacaa atatcccgga aa atg gat gtg   tct   23677
                                              Met Asp Val   Ser
                                                            2340

ggg gag ccg acc gtt tgt tcc aac gcg tat gcc aat gaa atg aaa   23722
Gly Glu Pro Thr Val Cys Ser Asn Ala Tyr Ala Asn Glu Met Lys
            2345   2350   2355

cta tcg gat tca aag gac att tat gtt ttg gcc cat ccg gtt acc   23767
Leu Ser Asp Ser Lys Asp Ile Tyr Val Leu Ala His Pro Val Thr
            2360   2365   2370

aaa aaa acc cgc aag cga ccc cgc ggg ctg cct ttg ggg gtt aag   23812
Lys Lys Thr Arg Lys Arg Pro Arg Gly Leu Pro Leu Gly Val Lys
            2375   2380   2385

cta gac ccc cca acc ttc aag tta aat aac atg tca cat cat tac   23857
Leu Asp Pro Pro Thr Phe Lys Leu Asn Asn Met Ser His His Tyr
            2390   2395   2400

gac acg gaa acg ttc acc ccc gtc tct tcg caa ctg gat tcg gtt   23902
Asp Thr Glu Thr Phe Thr Pro Val Ser Ser Gln Leu Asp Ser Val
            2405   2410   2415

gaa gtt ttc agc aag ttt aac att tcc cct gag tgg tat gac ctg   23947

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Glu Val Phe Ser   Lys Phe Asn Ile Ser   Pro Glu Trp Tyr Asp   Leu
            2420                    2425                2430

ttg tcg gac gaa   ctt aaa gag ccg tac   gcg aaa ggt att ttt   tta          23992
Leu Ser Asp Glu   Leu Lys Glu Pro Tyr   Ala Lys Gly Ile Phe   Leu
            2435                    2440                2445

gaa tac aat cgt   ctt tta aat tca ggg   gaa gaa ata ctt cca   tct          24037
Glu Tyr Asn Arg   Leu Leu Asn Ser Gly   Glu Glu Ile Leu Pro   Ser
            2450                    2455                2460

aca ggc gat att   ttt gca tgg acg cga   ttt tgc gga ccc cag   agc          24082
Thr Gly Asp Ile   Phe Ala Trp Thr Arg   Phe Cys Gly Pro Gln   Ser
            2465                    2470                2475

att cgc gtt gta   att att ggt caa gat   cca tac cct acc gcg   gga          24127
Ile Arg Val Val   Ile Ile Gly Gln Asp   Pro Tyr Pro Thr Ala   Gly
            2480                    2485                2490

cat gca cat ggg   cta gcg ttt agt gta   aaa cgt ggc ata aca   cca          24172
His Ala His Gly   Leu Ala Phe Ser Val   Lys Arg Gly Ile Thr   Pro
            2495                    2500                2505

ccg tct agt ctt   aaa aat att ttt gcg   gcc ctc atg gaa tca   tac          24217
Pro Ser Ser Leu   Lys Asn Ile Phe Ala   Ala Leu Met Glu Ser   Tyr
            2510                    2515                2520

cca aat atg act   ccg ccc act cac gga   tgc ctg gag agt tgg   gca          24262
Pro Asn Met Thr   Pro Pro Thr His Gly   Cys Leu Glu Ser Trp   Ala
            2525                    2530                2535

agg cag ggg gtg   tta ttg ctg aat acc   acg ctt acg gtt cgt   cgc          24307
Arg Gln Gly Val   Leu Leu Leu Asn Thr   Thr Leu Thr Val Arg   Arg
            2540                    2545                2550

ggg act ccg ggg   tcg cat gta tac tta   ggc tgg ggg cgg ctg   gtg          24352
Gly Thr Pro Gly   Ser His Val Tyr Leu   Gly Trp Gly Arg Leu   Val
            2555                    2560                2565

caa cgc gtg cta   cag agg tta tgc gag   aac cgt aca ggg tta   gtt          24397
Gln Arg Val Leu   Gln Arg Leu Cys Glu   Asn Arg Thr Gly Leu   Val
            2570                    2575                2580

ttt atg ctg tgg   ggt gcg cat gca cag   aag aca acc caa ccg   aat          24442
Phe Met Leu Trp   Gly Ala His Ala Gln   Lys Thr Thr Gln Pro   Asn
            2585                    2590                2595

tca aga tgt cat   ctg gtg cta aca cac   gcg cat ccg tcg cca   ttg          24487
Ser Arg Cys His   Leu Val Leu Thr His   Ala His Pro Ser Pro   Leu
            2600                    2605                2610

tcc cgt gtt cca   ttt cgg aat tgt cga   cat ttc gtt caa gcc   aat          24532
Ser Arg Val Pro   Phe Arg Asn Cys Arg   His Phe Val Gln Ala   Asn
            2615                    2620                2625

gag tat ttt acg   cgt aaa ggc gaa ccc   gag atc gat tgg agt   gtt          24577
Glu Tyr Phe Thr   Arg Lys Gly Glu Pro   Glu Ile Asp Trp Ser   Val
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ata taa cactccaatc gaccctcttg cgtaccataa tgttttcgga gttgcctcct   24633
Ile

tccgtaccga cggcattgct tcaatggggt tggggattgc atcgtggacc gtgttcgatc   24693

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296

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Gly Ala  Gly Met Ala Asp Gly  Met Ser Gly Ile Asn  Ile Pro Ser
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Glu Glu  Gly Leu Asp Val Ser  Asp Val Ile Glu Asp  Leu Arg Ile
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Lys Pro  Glu His Gln Glu Thr  Val Leu Val Val Leu  Asn Gly Asp
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Ser Ser  Glu Val Ser Cys Asp  Arg Tyr Tyr Met Glu  Cys Val Thr
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302

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308

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taaggggcga cgcgtctcga atcagatatt gggctaagtg aacttcatct gccccggttt   49240

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gtttttgtga tgcccatggg ttaagagttg ctcgatctgt ataagcaaca tccgattgtg   49600

tgtgatcaaa cattatagcc tctatgtcgg cgtcacggtc acccatatat aacattccag   49660
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311

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caatggtttc atcgtacgcc tgatatgcca tcataataag gccatggtaa agcgctccgt   50500

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312

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cgttaacggt tggcatggct tccgggggac gctgcggtcc gggaaggtct acgtcccccg    51640

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313

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caaaaatgca acggtgtgca cacacctcta tggttgacag cacatttcca gttggaatga    53260

tccccgctgg gatgttaaat aacccagcaa tacgatcaga ttccgttgta gtaatcacgt    53320

tagcgggaca tgaaaccgtt gtcattttgt cagcagcgtt gcgacttgaa tccggacgtg    53380

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cggacccaca cccttggccc aataaaggat accgtgtcca ccaaacagtc catagcgtaa    53620

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gtaaaaatgt tgacaaagtt aaagccgatc cttgtattat gtagaatata ccccgcctga    54340

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gacctaaggt tggcgatcac acgatcacgg gacggcaagt tcgaggttaa tgttccgata    54580

aacgctttaa t atg  gaa ttt cca tat cat  tca acc gta tct tat   aac     54627
             Met  Glu Phe Pro Tyr His  Ser Thr Val Ser Tyr  Asn
             3045              3050                3055

ggc gta acg ttt  tat ttt aac gag cgt  gct acc agg gcg tat   ttt      54672
Gly Val Thr Phe  Tyr Phe Asn Glu Arg  Ala Thr Arg Ala Tyr  Phe
          3060               3065                3070
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314

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ata tgc ggg gga  tgc tta att tcc ata  ccc cgc aaa cat gga  ggc      54717
Ile Cys Gly Gly  Cys Leu Ile Ser Ile  Pro Arg Lys His Gly  Gly
            3075                3080                3085

gag atc gca aaa  ttt gga cat gtt gtt  cgc ggg gtc gga ccc  ggt      54762
Glu Ile Ala Lys  Phe Gly His Val Val  Arg Gly Val Gly Pro  Gly
            3090                3095                3100

gac aga tct gtt  gcc agt tac gtt cga  agt gag ctc aat cgc  acc      54807
Asp Arg Ser Val  Ala Ser Tyr Val Arg  Ser Glu Leu Asn Arg  Thr
            3105                3110                3115

ggg aag aca tgg  gcg gta tca tcc aat  aat aac tgc gtg ttt  ttg      54852
Gly Lys Thr Trp  Ala Val Ser Ser Asn  Asn Asn Cys Val Phe  Leu
            3120                3125                3130

gat cga gtg gcc  tta ctt gca gcg gga  tcg ggg gcg gtg gat  cgc      54897
Asp Arg Val Ala  Leu Leu Ala Ala Gly  Ser Gly Ala Val Asp  Arg
            3135                3140                3145

gac ctt tgc gga  aca ttt gat gtt gaa  gtg gag gac cct acg  ctc      54942
Asp Leu Cys Gly  Thr Phe Asp Val Glu  Val Glu Asp Pro Thr  Leu
            3150                3155                3160

gca gat tat ctc  gtg tcc ctc ccc gtg  acg cat tta aca ttg  gtg      54987
Ala Asp Tyr Leu  Val Ser Leu Pro Val  Thr His Leu Thr Leu  Val
            3165                3170                3175

gcg ggg gta gat  gtt acg cgc gag aat  aag cta aaa ttg ttt  cca      55032
Ala Gly Val Asp  Val Thr Arg Glu Asn  Lys Leu Lys Leu Phe  Pro
            3180                3185                3190

aca ccc acc gcc  att aat acc aca aat  ggc ttt atg tac gta  cca      55077
Thr Pro Thr Ala  Ile Asn Thr Thr Asn  Gly Phe Met Tyr Val  Pro
            3195                3200                3205

aac gaa gcc agt  ttt tca ttg gtg tat  atg cgt atg ttg gag  tta      55122
Asn Glu Ala Ser  Phe Ser Leu Val Tyr  Met Arg Met Leu Glu  Leu
            3210                3215                3220

cca gaa agt ttg  cag gag cta gtg agt  gga tta ttc gac ggg  acg      55167
Pro Glu Ser Leu  Gln Glu Leu Val Ser  Gly Leu Phe Asp Gly  Thr
            3225                3230                3235

ccc gag ata cga  gac gcg ctt aac gga  agt aac gac gat gaa  aaa      55212
Pro Glu Ile Arg  Asp Ala Leu Asn Gly  Ser Asn Asp Asp Glu  Lys
            3240                3245                3250

aca agt ata att  gtt agt cgg cgc gct  gct gat gtg gtt acg  gaa      55257
Thr Ser Ile Ile  Val Ser Arg Arg Ala  Ala Asp Val Val Thr  Glu
            3255                3260                3265

gac gta aaa gca  gat gat gtg ccg att  tcg ggt gaa ccg tat  tct      55302
Asp Val Lys Ala  Asp Asp Val Pro Ile  Ser Gly Glu Pro Tyr  Ser
            3270                3275                3280
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315

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gag aaa cag cct  aga cgg cgt aag aag  tcc gat cat att aca  cta      55347
Glu Lys Gln Pro  Arg Arg Arg Lys Lys  Ser Asp His Ile Thr  Leu
            3285                3290                3295

agt aac ttt gta  cag att agg acc atc  ccc cgg gta atg gac  att      55392
Ser Asn Phe Val  Gln Ile Arg Thr Ile  Pro Arg Val Met Asp  Ile
            3300                3305                3310

tgg gat cct cgc  cat aaa gcc act act  cat tgt atc cgc gcg  tta      55437
Trp Asp Pro Arg  His Lys Ala Thr Thr  His Cys Ile Arg Ala  Leu
            3315                3320                3325

tca tgt gcg gtt  ttt ttt gcg gac gag  gtt ata ttt aaa gcc  aga      55482
Ser Cys Ala Val  Phe Phe Ala Asp Glu  Val Ile Phe Lys Ala  Arg
            3330                3335                3340

aaa tgg cct gga  ctt gaa gat gaa ctt  aat gaa gcc cgt gag  acg      55527
Lys Trp Pro Gly  Leu Glu Asp Glu Leu  Asn Glu Ala Arg Glu  Thr
            3345                3350                3355

ata tat act gca  gtt gtt gcg gta tat  ggc gaa cgg ggg gaa  ctt      55572
Ile Tyr Thr Ala  Val Val Ala Val Tyr  Gly Glu Arg Gly Glu  Leu
            3360                3365                3370

cca ttt ttc ggg  cat gct tac gga cgt  gat ctg acg tcc tgt  caa      55617
Pro Phe Phe Gly  His Ala Tyr Gly Arg  Asp Leu Thr Ser Cys  Gln
            3375                3380                3385

cgg ttc gtg att  gtt caa tat ata ctg  tct cgg tgg gaa gcg  ttt      55662
Arg Phe Val Ile  Val Gln Tyr Ile Leu  Ser Arg Trp Glu Ala  Phe
            3390                3395                3400

aat tgt tat gcc  gtt att gaa gat tta  acg cgt agt tat gtt  aac      55707
Asn Cys Tyr Ala  Val Ile Glu Asp Leu  Thr Arg Ser Tyr Val  Asn
            3405                3410                3415

gcg tta ccc agt  gat gat gac acg gat  caa gtt gct caa gat  tta      55752
Ala Leu Pro Ser  Asp Asp Asp Thr Asp  Gln Val Ala Gln Asp  Leu
            3420                3425                3430

ata cgg acc att  gtg gat aca gca aac  agc ctc ttg agg gaa  gtg      55797
Ile Arg Thr Ile  Val Asp Thr Ala Asn  Ser Leu Leu Arg Glu  Val
            3435                3440                3445

ggc ttt att ggc  acg ttg gct gaa act  ttg ttg ttc tta cca  ctc      55842
Gly Phe Ile Gly  Thr Leu Ala Glu Thr  Leu Leu Phe Leu Pro  Leu
            3450                3455                3460

ccc cag ctt ccc  tgt tac aag gaa acg  tca cat ctt gca aaa  aag      55887
Pro Gln Leu Pro  Cys Tyr Lys Glu Thr  Ser His Leu Ala Lys  Lys
            3465                3470                3475

gaa ggt gtg cga  att tta cgc ctt gca  aaa aca gga gtt ggt  tta      55932
Glu Gly Val Arg  Ile Leu Arg Leu Ala  Lys Thr Gly Val Gly  Leu
            3480                3485                3490

tcg gat act gtt  ccg gtt gat gtt tct  gtc acg gaa agg cat  gag      55977
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Ser Asp Thr Val  Pro Val Asp Val Ser  Val Thr Glu Arg His  Glu
            3495                3500                3505

tat gag ata tcc  cgg tac tta gat acc  ctg tac tct gga gac  ccc     56022
Tyr Glu Ile Ser  Arg Tyr Leu Asp Thr  Leu Tyr Ser Gly Asp  Pro
            3510                3515                3520

tgc tat aac ggc  gct gtg cgt cta tgc  cgt tta ttg gga tca  tca     56067
Cys Tyr Asn Gly  Ala Val Arg Leu Cys  Arg Leu Leu Gly Ser  Ser
            3525                3530                3535

att ccc att gcc  ctg tac tac aat aca  ata tcg ggt aat gcc  ttt     56112
Ile Pro Ile Ala  Leu Tyr Tyr Asn Thr  Ile Ser Gly Asn Ala  Phe
            3540                3545                3550

gaa ccg tat ttt  gct ggg agg cgt tat  ata gca tat tta ggc  gct     56157
Glu Pro Tyr Phe  Ala Gly Arg Arg Tyr  Ile Ala Tyr Leu Gly  Ala
            3555                3560                3565

cta ttt ttt ggt  aga gtg cac caa aca  cca ttt ggg gac ggg  aaa     56202
Leu Phe Phe Gly  Arg Val His Gln Thr  Pro Phe Gly Asp Gly  Lys
            3570                3575                3580

aaa acc caa agg  tag tgtgtattat tcgcgaataa agtattgtag agaatacgtt   56257
Lys Thr Gln Arg
            3585

tatagtgact ttttattata catgtttttt atgtcagagg tattttatta tattctcgaa   56317

ggcgggaatt ccacataac atccatccga taataccaaa ccccactacc gccagaaacg     56377

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gattcataac atgaatctct tccgtgaggt ctgtacgaag ggaacccata caaggactgt     57097

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317

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gaagaattac caccgctaaa actagcgcaa acatagtcgc tgttacttgc gctacaatat   58837

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318

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cttttttactg gtacatacgt aaatactagg tatatttagg aagtgttgtc ctgaacggca    59077

ttaacaagct ctttcaatat attccatgca ccggaggaca tgtttgccgg ggtcatctgg    59137

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accgtttctc ccggtctggc ccgtttgctt actctggata aatgactggg gagtgaaacg    59557

gtacaaacta ccaagttggt cccggggggt tcagcgggaa gcgtaaacaa taacccagga    59617

agcgccgctg gggacatatc tcccactaag tatctggaca agggaaaaca tatagttgag    59677

gcgattgggt gtcggtcgga taacataatt ttatacggct ccttatttac ttgtacgaga    59737

tccgatgtac ttgtgtccat caatgccgag attttcgcat gcataattgc atgcggagaa    59797

cagaacaggc tctgaaaatg agccgtgagg cgttgtgcgt cttcaggcga aacgtctcca    59857

ttaagacggc gagtttgtgt tccgtaaatt ccgcaaatgg cgtcctcccc tgcaaggtta    59917

cgccaatacg acaggggctc cccaatgagt aagatccggt ttggtgttat tgcaaagtgg    59977

tgtaaaaatt cttcggcggc ggttgttttt ccaattccat acgccccgtc caaataaata    60037

cgcaaaacgc ccatttttac atcggttttta tccgttgaca tgtttattgt agacaaacgc    60097

gtcttaggtt atcttctggg acggaacttc aaat atg tcc gct agt cga  att      60149
                                      Met Ser Ala Ser Arg  Ile
                                                       3590

cgg gcc aag tgt  ttt cgt ttg gga caa  cgt tgc cac act cgt  ttt      60194
Arg Ala Lys Cys  Phe Arg Leu Gly Gln  Arg Cys His Thr Arg  Phe
            3595                  3600                3605

tac gat gta ctc  aaa aag gat att gat  aac gta cgt cga ggt  ttc      60239
Tyr Asp Val Leu  Lys Lys Asp Ile Asp  Asn Val Arg Arg Gly  Phe
            3610                  3615                3620

gcg gac gcg ttc  aac ccg agg ctg gca  aaa ctc ctg tcg ccg  tta      60284
Ala Asp Ala Phe  Asn Pro Arg Leu Ala  Lys Leu Leu Ser Pro  Leu
            3625                  3630                3635
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tcc cac gtg gat  gtt caa agg gct gta  cgc ata tca atg tcg  ttt       60329
Ser His Val Asp  Val Gln Arg Ala Val  Arg Ile Ser Met Ser  Phe
            3640                 3645                 3650

gaa gta aat ttg  gga cgc cga cgc ccc  gat tgt gtt tgt att  ata       60374
Glu Val Asn Leu  Gly Arg Arg Arg Pro  Asp Cys Val Cys Ile  Ile
            3655                 3660                 3665

caa acg gaa tcc  agt ggt gcc gga aag  acc gtt tgt ttt ata  gtg       60419
Gln Thr Glu Ser  Ser Gly Ala Gly Lys  Thr Val Cys Phe Ile  Val
            3670                 3675                 3680

gaa tta aaa tct  tgc cgt ttt agc gct  aat ata cat acc cct  act       60464
Glu Leu Lys Ser  Cys Arg Phe Ser Ala  Asn Ile His Thr Pro  Thr
            3685                 3690                 3695

aag tat cac cag  ttt tgc gag ggt atg  cgc cag ctg agg gat  acc       60509
Lys Tyr His Gln  Phe Cys Glu Gly Met  Arg Gln Leu Arg Asp  Thr
            3700                 3705                 3710

atg gct tta ata  aag gaa acc aca ccc  acg gga tct gat gaa  ata       60554
Met Ala Leu Ile  Lys Glu Thr Thr Pro  Thr Gly Ser Asp Glu  Ile
            3715                 3720                 3725

atg gtg acc ccc  ctc ctt gtg ttt gta  tct caa cgg ggt ctg  aac       60599
Met Val Thr Pro  Leu Leu Val Phe Val  Ser Gln Arg Gly Leu  Asn
            3730                 3735                 3740

ctg tta cag gta  act cgg tta ccc cca  aag gtg att cat gga  aac       60644
Leu Leu Gln Val  Thr Arg Leu Pro Pro  Lys Val Ile His Gly  Asn
            3745                 3750                 3755

ctt gtt atg cta  gcg tcg cat ttg gag  aat gta gcg gaa tat  acc       60689
Leu Val Met Leu  Ala Ser His Leu Glu  Asn Val Ala Glu Tyr  Thr
            3760                 3765                 3770

ccc ccg ata agg  tcc gtt aga gag cga  aga cgt cta tgc aaa  aag       60734
Pro Pro Ile Arg  Ser Val Arg Glu Arg  Arg Arg Leu Cys Lys  Lys
            3775                 3780                 3785

aaa att cac gta  tgt tct ctt gcg aaa  aag cgt gcg aaa tca  tgc       60779
Lys Ile His Val  Cys Ser Leu Ala Lys  Lys Arg Ala Lys Ser  Cys
            3790                 3795                 3800

cat cgt tcc gct  tta aca aag ttt gaa  gaa aat gca gct tgt  ggg       60824
His Arg Ser Ala  Leu Thr Lys Phe Glu  Glu Asn Ala Ala Cys  Gly
            3805                 3810                 3815

gtg gat tta ccc  ctt aga agg cct tct  tta ggt gct tgt ggt  gga       60869
Val Asp Leu Pro  Leu Arg Arg Pro Ser  Leu Gly Ala Cys Gly  Gly
            3820                 3825                 3830

att tta caa agt  ata acc ggg atg ttt  tcc cat ggg taa gaaaacagct    60918
Ile Leu Gln Ser  Ile Thr Gly Met Phe  Ser His Gly
            3835                 3840


tttaaagcag taccggttta tattcacgcc agttgacttt gtttgctgca gacacc atg    60977


                                   320
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acg gcg aga tat ggg ttc  gga tct atc tcg ttt  ccg aat aaa tgt    61022
Thr Ala Arg Tyr Gly Phe  Gly Ser Ile Ser Phe  Pro Asn Lys Cys
3845                3850                3855

ggg ata ttt ttg tct acc  act aag aac ttt ata  gcc ccc aac ttc    61067
Gly Ile Phe Leu Ser Thr  Thr Lys Asn Phe Ile  Ala Pro Asn Phe
3860                3865                3870

ccc ata cac tac tgg acg  gct ccc gcg ttt gag  tta aga ggg cgt    61112
Pro Ile His Tyr Trp Thr  Ala Pro Ala Phe Glu  Leu Arg Gly Arg
3875                3880                3885

atg aat ccc gat ttg gaa  aaa aat acg tta acg  tta aaa aat gcg    61157
Met Asn Pro Asp Leu Glu  Lys Asn Thr Leu Thr  Leu Lys Asn Ala
3890                3895                3900

gcg gcc gtt gcc gca tta  gac aac ctt cgc ggg  gaa acg att acg    61202
Ala Ala Val Ala Ala Leu  Asp Asn Leu Arg Gly  Glu Thr Ile Thr
3905                3910                3915

tta cca acg gaa ata gat  cgt cgt tta aag ccc  ctc gaa gaa caa    61247
Leu Pro Thr Glu Ile Asp  Arg Arg Leu Lys Pro  Leu Glu Glu Gln
3920                3925                3930

cta acg cgc atg gcc aag  gtt ttg gat tcc ctg  gag acg gct gct    61292
Leu Thr Arg Met Ala Lys  Val Leu Asp Ser Leu  Glu Thr Ala Ala
3935                3940                3945

gcc gag gcg gaa gaa gca  gat gca caa tct gag  gaa tgt aca cgt    61337
Ala Glu Ala Glu Glu Ala  Asp Ala Gln Ser Glu  Glu Cys Thr Arg
3950                3955                3960

aca gaa ata ata cgc aat  gag tct ata cac ccc  gag gta cag att    61382
Thr Glu Ile Ile Arg Asn  Glu Ser Ile His Pro  Glu Val Gln Ile
3965                3970                3975

gcc aaa aat gat gca ccg  ttg cag tac gat aca  aac ttt caa gtg    61427
Ala Lys Asn Asp Ala Pro  Leu Gln Tyr Asp Thr  Asn Phe Gln Val
3980                3985                3990

gat ttt atc acc ctg gtg  tac ttg gga agg gca  agg ggc aat aac    61472
Asp Phe Ile Thr Leu Val  Tyr Leu Gly Arg Ala  Arg Gly Asn Asn
3995                4000                4005

tct cca ggg att gtt ttc  ggg cca tgg tat cgt  act ctg cag gaa    61517
Ser Pro Gly Ile Val Phe  Gly Pro Trp Tyr Arg  Thr Leu Gln Glu
4010                4015                4020

cgg ctt gtg tta gat agg  ccc gta gct gca cgc  gga gtt gat tgt    61562
Arg Leu Val Leu Asp Arg  Pro Val Ala Ala Arg  Gly Val Asp Cys
4025                4030                4035

aaa gac ggg cgc att tcc  cgt acg ttt atg aac  aca acg gta aca    61607
Lys Asp Gly Arg Ile Ser  Arg Thr Phe Met Asn  Thr Thr Val Thr
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321

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      4040                          4045                          4050

tgt cta cag tcc gcc ggg  aga atg tat gtt gga  gat aga gcg tac      61652
Cys Leu Gln Ser Ala Gly  Arg Met Tyr Val Gly  Asp Arg Ala Tyr
4055                     4060                 4065

tcc gcg ttc gag tgt gcg  gta tta tgt tta tat  tta atg tat agg      61697
Ser Ala Phe Glu Cys Ala  Val Leu Cys Leu Tyr  Leu Met Tyr Arg
4070                     4075                 4080

aca tct aat agt gtc cac  gaa cct caa gtt tcg  tcc ttc ggg aac      61742
Thr Ser Asn Ser Val His  Glu Pro Gln Val Ser  Ser Phe Gly Asn
4085                     4090                 4095

ctt ata gag cac cta ccg  gaa tat act gag aca  ttt gtg aat tat      61787
Leu Ile Glu His Leu Pro  Glu Tyr Thr Glu Thr  Phe Val Asn Tyr
4100                     4105                 4110

atg aca aca cac gaa aat  aaa aac agt tat caa  ttt tgc tat gat      61832
Met Thr Thr His Glu Asn  Lys Asn Ser Tyr Gln  Phe Cys Tyr Asp
4115                     4120                 4125

cgt cta cca cgc gac cag  ttt cat gct cgt ggg  ggg cgg tat gat      61877
Arg Leu Pro Arg Asp Gln  Phe His Ala Arg Gly  Gly Arg Tyr Asp
4130                     4135                 4140

caa ggc gcc tta acg tca  cat tct gtt atg gat  gcg ctt ata cgg      61922
Gln Gly Ala Leu Thr Ser  His Ser Val Met Asp  Ala Leu Ile Arg
4145                     4150                 4155

ttg cag gtc cta ccg cct  gca cct gga cag ttt  aat cct ggg gtt      61967
Leu Gln Val Leu Pro Pro  Ala Pro Gly Gln Phe  Asn Pro Gly Val
4160                     4165                 4170

aat gac att att gat cgc  aat cat acc gca tat  gtg gac aag att      62012
Asn Asp Ile Ile Asp Arg  Asn His Thr Ala Tyr  Val Asp Lys Ile
4175                     4180                 4185

caa cag gcg gcc gcg gcg  tat tta gaa cgg gcc  caa aac gtg ttt      62057
Gln Gln Ala Ala Ala Ala  Tyr Leu Glu Arg Ala  Gln Asn Val Phe
4190                     4195                 4200

ctt atg gaa gac caa act  cta tta agg tta aca  att gac acg att      62102
Leu Met Glu Asp Gln Thr  Leu Leu Arg Leu Thr  Ile Asp Thr Ile
4205                     4210                 4215

acg gcg tta tta tta tta  agg cgc tta tta tgg  aac ggg aac gta      62147
Thr Ala Leu Leu Leu Leu  Arg Arg Leu Leu Trp  Asn Gly Asn Val
4220                     4225                 4230

tac gga gat aaa cta aaa  aat aat ttt caa ctg  ggt ttg att gtg      62192
Tyr Gly Asp Lys Leu Lys  Asn Asn Phe Gln Leu  Gly Leu Ile Val
4235                     4240                 4245

tca gaa gca aca gga acc  cct acc aac aat gta  atc ttg cgc gga      62237
Ser Glu Ala Thr Gly Thr  Pro Thr Asn Asn Val  Ile Leu Arg Gly
4250                     4255                 4260
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322

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gcg acg ggg ttt gat ggg  aag ttt aaa agc ggt  aat aat aac ttt    62282
Ala Thr Gly Phe Asp Gly  Lys Phe Lys Ser Gly  Asn Asn Asn Phe
4265             4270             4275

caa ttt tta tgt gaa cga  tat ata gca cca ctg  tat acg tta aat    62327
Gln Phe Leu Cys Glu Arg  Tyr Ile Ala Pro Leu  Tyr Thr Leu Asn
4280             4285             4290

cgg acc aca gag ctg act  gaa atg ttt cct gga  tta gtt gct ctt    62372
Arg Thr Thr Glu Leu Thr  Glu Met Phe Pro Gly  Leu Val Ala Leu
4295             4300             4305

tgt tta gac gcg cat acc  cag ctt agt cgt gga  agt tta gga aga    62417
Cys Leu Asp Ala His Thr  Gln Leu Ser Arg Gly  Ser Leu Gly Arg
4310             4315             4320

acc gta ata gat att tct  tct gga cag tac caa  gat cgg ctc ata    62462
Thr Val Ile Asp Ile Ser  Ser Gly Gln Tyr Gln  Asp Arg Leu Ile
4325             4330             4335

agc tta att gca ttg gaa  tta gaa cac cgc cga  caa aat gtt aca    62507
Ser Leu Ile Ala Leu Glu  Leu Glu His Arg Arg  Gln Asn Val Thr
4340             4345             4350

tcc cta ccc ata gcc gcc  gtg gta tca ata cat  gac agt gtt atg    62552
Ser Leu Pro Ile Ala Ala  Val Val Ser Ile His  Asp Ser Val Met
4355             4360             4365

ttg caa tat gaa cgg gga  ctt gga atg tta atg  cac caa ccg cgt    62597
Leu Gln Tyr Glu Arg Gly  Leu Gly Met Leu Met  His Gln Pro Arg
4370             4375             4380

gta agg gcg gca ttg gaa  gaa agt cgc cgc ctt  gcg cag ttc aac    62642
Val Arg Ala Ala Leu Glu  Glu Ser Arg Arg Leu  Ala Gln Phe Asn
4385             4390             4395

gtt aac agt gac tat gat  ctt cta tat ttt gtc  tgt ttg ggt gtc    62687
Val Asn Ser Asp Tyr Asp  Leu Leu Tyr Phe Val  Cys Leu Gly Val
4400             4405             4410

att cct cag ttt gcc tcc  aca ccg tga gtattcacta tccggtccgt       62734
Ile Pro Gln Phe Ala Ser  Thr Pro
4415             4420

ggggtgttta ta atg gct gct  gaa gct gac gaa gag  aac tgt gaa gcg    62782
              Met Ala Ala  Glu Ala Asp Glu Glu  Asn Cys Glu Ala
                  4425             4430

tta tac gtg gct ggg tat  tta gcc tta tat tca  aag gac gaa ggg    62827
Leu Tyr Val Ala Gly Tyr  Leu Ala Leu Tyr Ser  Lys Asp Glu Gly
4435             4440             4445

gaa tta aat att acc cca  gag att gtg cgg tcc  gct ttg ccg cct    62872
Glu Leu Asn Ile Thr Pro  Glu Ile Val Arg Ser  Ala Leu Pro Pro
4450             4455             4460
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323

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act agt aaa ata cca ata  aac atc gat cat cga  aaa gac tgt gtc      62917
Thr Ser Lys Ile Pro Ile  Asn Ile Asp His Arg  Lys Asp Cys Val
4465             4470              4475

gtg ggt gaa gta atc gca  atc att gag gac ata  cgc gga cct ttt      62962
Val Gly Glu Val Ile Ala  Ile Ile Glu Asp Ile  Arg Gly Pro Phe
4480             4485              4490

ttt ttg ggt atc gtt aga  tgc cct caa cta cat  gcg gtg ctg ttt      63007
Phe Leu Gly Ile Val Arg  Cys Pro Gln Leu His  Ala Val Leu Phe
4495             4500              4505

gaa gcg gcc cat tcg aat  ttt ttt gga aat aga  gat tct gta tta      63052
Glu Ala Ala His Ser Asn  Phe Phe Gly Asn Arg  Asp Ser Val Leu
4510             4515              4520

tct ccg cta gaa cgt gcg  tta tac ttg gtc aca  aat tac tta ccc      63097
Ser Pro Leu Glu Arg Ala  Leu Tyr Leu Val Thr  Asn Tyr Leu Pro
4525             4530              4535

tcc gta tcc ctg tct tca  aaa cga ttg tcc ccg  aat gag ata cca      63142
Ser Val Ser Leu Ser Ser  Lys Arg Leu Ser Pro  Asn Glu Ile Pro
4540             4545              4550

gac ggt aat ttt ttt acc  cat gtt gcg tta tgt  gtt gtt gga aga      63187
Asp Gly Asn Phe Phe Thr  His Val Ala Leu Cys  Val Val Gly Arg
4555             4560              4565

cgc gtt gga aca gtg gtc  aat tat gac tgt acc  ccg gaa tct tca      63232
Arg Val Gly Thr Val Val  Asn Tyr Asp Cys Thr  Pro Glu Ser Ser
4570             4575              4580

att gaa cca ttc cgg gtt  tta tcg atg gaa agt  aaa gcg cgg tta      63277
Ile Glu Pro Phe Arg Val  Leu Ser Met Glu Ser  Lys Ala Arg Leu
4585             4590              4595

ttg tcg ctg gtt aaa gac  tac gcg ggt tta aat  aaa gta tgg aag      63322
Leu Ser Leu Val Lys Asp  Tyr Ala Gly Leu Asn  Lys Val Trp Lys
4600             4605              4610

gtt agc gaa gat aaa ctc  gcc aag gtg tta tta  tcc aca gcc gtg      63367
Val Ser Glu Asp Lys Leu  Ala Lys Val Leu Leu  Ser Thr Ala Val
4615             4620              4625

aac aat atg ctt tta aga  gat aga tgg gac gtg  gtt gca aaa cgt      63412
Asn Asn Met Leu Leu Arg  Asp Arg Trp Asp Val  Val Ala Lys Arg
4630             4635              4640

aga cgc gaa gcc gga att  atg ggt cac gtt tat  ctt cag gct agc      63457
Arg Arg Glu Ala Gly Ile  Met Gly His Val Tyr  Leu Gln Ala Ser
4645             4650              4655

acc gga tat gga ctt gct  cgg ata acc aac gtt  aat ggg gtg gag      63502
Thr Gly Tyr Gly Leu Ala  Arg Ile Thr Asn Val  Asn Gly Val Glu
4660             4665              4670

tct aaa tta ccc aac gcg  ggt gtt ata aac gcc  aca ttc cac ccc      63547
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324

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Ser  Lys Leu Pro Asn Ala  Gly Val Ile Asn Ala  Thr Phe His Pro
4675                4680                4685

ggc  ggg ccc ata tac gat  ctc gcg ttg ggt gtt  ggg gaa tca aat      63592
Gly  Gly Pro Ile Tyr Asp  Leu Ala Leu Gly Val  Gly Glu Ser Asn
4690                4695                4700

gaa  gat tgt gaa aag act  gtt ccg cat tta aag  gtt acg cag ttg      63637
Glu  Asp Cys Glu Lys Thr  Val Pro His Leu Lys  Val Thr Gln Leu
4705                4710                4715

tgt  agg aac gac agc gat  atg gct tct gta gca  ggt aac gct agt      63682
Cys  Arg Asn Asp Ser Asp  Met Ala Ser Val Ala  Gly Asn Ala Ser
4720                4725                4730

aat  atc tca cca cag ccc  ccg tcg ggc gtt cca  acc gga ggg gaa      63727
Asn  Ile Ser Pro Gln Pro  Pro Ser Gly Val Pro  Thr Gly Gly Glu
4735                4740                4745

ttt  gta ctg ata cct acc  gcg tat tat tca cag  ctg tta acc ggg      63772
Phe  Val Leu Ile Pro Thr  Ala Tyr Tyr Ser Gln  Leu Leu Thr Gly
4750                4755                4760

cag  act aaa aat ccg cag  gta tca att gga gct  cca aat aac gga      63817
Gln  Thr Lys Asn Pro Gln  Val Ser Ile Gly Ala  Pro Asn Asn Gly
4765                4770                4775

cag  tat atc gtc ggg cca  tat gga tct cca cac  ccg cct gcc ttc      63862
Gln  Tyr Ile Val Gly Pro  Tyr Gly Ser Pro His  Pro Pro Ala Phe
4780                4785                4790

cca  cct aat aca ggg ggt  tat ggt tgc cct ccg  gga cac ttc ggg      63907
Pro  Pro Asn Thr Gly Gly  Tyr Gly Cys Pro Pro  Gly His Phe Gly
4795                4800                4805

gga  ccg tac ggg ttt ccg  gga tat cca cca ccc  aat cgt ttg gaa      63952
Gly  Pro Tyr Gly Phe Pro  Gly Tyr Pro Pro Pro  Asn Arg Leu Glu
4810                4815                4820

atg  caa atg tcc gca ttt  atg aac gca ttg gcc  gcc gaa cgg ggt      63997
Met  Gln Met Ser Ala Phe  Met Asn Ala Leu Ala  Ala Glu Arg Gly
4825                4830                4835

att  gac ttg cag acc ccg  tgt gta aat ttt cca  gac aaa acc gat      64042
Ile  Asp Leu Gln Thr Pro  Cys Val Asn Phe Pro  Asp Lys Thr Asp
4840                4845                4850

gtc  cgt cgt cca gga aaa  cgg gat ttc aag agc  atg gat caa agg      64087
Val  Arg Arg Pro Gly Lys  Arg Asp Phe Lys Ser  Met Asp Gln Arg
4855                4860                4865

gaa  ttg gat tct ttt tat  agt ggg gag tct caa  atg gac gga gag      64132
Glu  Leu Asp Ser Phe Tyr  Ser Gly Glu Ser Gln  Met Asp Gly Glu
4870                4875                4880

ttt  ccc tca aat ata tat  ttt ccc ggt gaa cca  acg tat ata acg      64177
Phe  Pro Ser Asn Ile Tyr  Phe Pro Gly Glu Pro  Thr Tyr Ile Thr
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325

cat cgg aga cgt cga gtt tct cca tca tat tgg cag agg aga cac   64222
His Arg Arg Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His
4900   4905   4910

aga gtt tct aat ggt cag cac gaa gag ctt gct ggg gtt gtg gca   64267
Arg Val Ser Asn Gly Gln His Glu Glu Leu Ala Gly Val Val Ala
4915   4920   4925

aaa ctg caa cag gag gtt aca gag cta aaa tca caa aat ggg aca   64312
Lys Leu Gln Gln Glu Val Thr Glu Leu Lys Ser Gln Asn Gly Thr
4930   4935   4940

caa atg cct ttg tcg cac cat aca aat ata cca gag ggg aca cgg   64357
Gln Met Pro Leu Ser His His Thr Asn Ile Pro Glu Gly Thr Arg
4945   4950   4955

gat cct cga ata tcg att tta tta aaa cag ctt caa agc gtt tcg   64402
Asp Pro Arg Ile Ser Ile Leu Leu Lys Gln Leu Gln Ser Val Ser
4960   4965   4970

ggt cta tgc tca tcc caa aat aca aca agc acc cca cat aca gat   64447
Gly Leu Cys Ser Ser Gln Asn Thr Thr Ser Thr Pro His Thr Asp
4975   4980   4985

aca gtt gga caa gat gta aat gca gtg gag gcg agt tcc aag gcc   64492
Thr Val Gly Gln Asp Val Asn Ala Val Glu Ala Ser Ser Lys Ala
4990   4995   5000

cct tta ata cag ggg tcc acg gca gac gac gcc gat atg ttt gca   64537
Pro Leu Ile Gln Gly Ser Thr Ala Asp Asp Ala Asp Met Phe Ala
5005   5010   5015

aat cag atg atg gtg ggg cgg tgt taa ccaacaaata aaagtattac   64584
Asn Gln Met Met Val Gly Arg Cys
5020   5025

attcataaaa ggcgtgtttg gttttttttt ttttgttaag cggtgtcgtg ttaaacaaac   64644

agaaggcgtt tttatgggtg gtaaggtttt atttaagtta aatttaatcg gtgtcagaat   64704

cttcatcccc tgatgatggt tgttctcggt ctggaataat atatggcgcc atccattttt   64764

cctctggggt atccggaaac acacgcggga tgcaaaccca tcgaccgtt ataatctcca   64824

gtgccagtga aatatgacgg cccccctggac atgtgtttaa gtagtcgtat tggctgtcgc   64884

ggttaaggcg aaaaggtttc gttgcacatg ctcgacaggt tagctgtccc acagaacata   64944

cgtctcgggg tgtaccgtcg cggggtaatt gtaccggcgt gtgttctaac ctatcttcat   65004

aaatcgcggg gggagaatct tttactgttt cattgagact tgaagcgcac tgtttggacg   65064

gatgatgtgc gatagacgac ggttgttgta gcgcgttaat gttagacgat tccataataa   65124

ccccgttaag atatcgggtg cggtagaggt acaaaacgcg ttttgtatat tatcgggtat   65184

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aaataccccc tgtgatgcgt aatggagaca catgagtaac gtaatacaca tttttattaa  65244

taaattaaaa caaaccccct ggctatttac acccccgtta cattctcggt gcgaacacgg  65304

gagtatcctc ggcgatttcg taaagcaagg ccggtaagac gtgaagttaa aagggcgcta  65364

gtcttatttt ttttgcgggc tttagattct tggcgctcag ccgcagatac taacgtcata  65424

tatttaatca tttcctgggc ttctcgaaat ttatcgggat caaacccgct atttaccgac  65484

ggttcagtgt tttgtgagtc gccaatttct tctattgggg tatcagtagc gttgggtttc  65544

tcggcaaagg gatccattcc ttccggtaac tgttttaacc ccttggttgt gagtggatat  65604

aatgccttca tcgggcttgt tttaagttta agcacgtacc ggtacgcaaa aaaggccgct  65664

accagtcccg ccaaaaccaa taatcccacg gccaatgccc caaatgggtt agataaaaac  65724

gtggtaaatc cgtgtacggt ggaaagcagc gctcccgtgg ccccaagaac cacatgtcca  65784

acggcctggc ccgcggtccc aagtccctgg aaaaactgag ccatgccctg cataatggcc  65844

gttccgctat catattgcac aaccttgtct atgtcataaa aacgcagcga atgcatttga  65904

tttcggcgtt gaatttcact gtagtctagt aatcctgtat cccgcagctc gtctcttgta  65964

tatacttgca gcggcataaa ctctctatct ttaagaagtg ttaagtttaa atctacgtaa  66024

gtgctaatca ttcccacatc atggactgcg atttcacgga cgtaacgata atcctcataa  66084

tatacgtagt gatgcccaaa tagaaaatat cgcttgtgat tagccacgca tggttctaac  66144

agatctctgg acataattaa ctcgttatct gttccaagct ggccctccac cgtcccggac  66204

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cgcaactcaa ctggcacgct tcgtcgggat ctggtatttc gagtcgggtg tttttgtggt  66624

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gttctaacat gagatgagtt gtatctggtt gtatagatcc ggttaataat agcccgggct  66804

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327

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328

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gtttttcatg ttcgtttaat acatccaaat tatcaacaaa cacgtctaaa gtacgttggg   69264

gtccttcagt ggaattagac gttaaccaga atttaagctc gctgatggcg tacatacacc   69324

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329

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atcaaagagt tcgtcatctt cggggggtcg tttaagacca gggacagttg accctgaaat   70524

gtttgaccct gaaatgttta atacgttaga tgtggtgtca tggcttggtt cacaagaatc   70584

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330

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331

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cacagtcttc tgagtatttt ccattttggt gaagtactcg taataatggg gggttgttgg    74064

cagggtcaaa tgaccaccca aaacccagtc tgtcgataca ttaagaagag aggcttttaa    74124

acgggtatta catatgcgga aaccacaaca aatcacgtga ttcacttta tgtattagaa      74184

gggcgtgggg ttgtgttact cagtaacact ggcttttac aagattatca atcgttaaca      74244

taaa atg gcg atc  aga acg ggg ttt tgt  aat ccc ttt tta acc  caa         74290
     Met Ala Ile  Arg Thr Gly Phe Cys  Asn Pro Phe Leu Thr  Gln
          5030              5035              5040

gca tca ggg att  aaa tat aac cca aga  acc ggg cgc ggt agt  aac         74335
Ala Ser Gly Ile  Lys Tyr Asn Pro Arg  Thr Gly Arg Gly Ser  Asn
         5045              5050              5055

aga gaa ttt ctt  cat agt tac aaa act  acc atg tca tcg ttt  caa         74380
Arg Glu Phe Leu  His Ser Tyr Lys Thr  Thr Met Ser Ser Phe  Gln
         5060              5065              5070

ttt ttg gcc cct  aaa tgt tta gat gaa  gat gtg ccc atg gaa  gaa         74425
Phe Leu Ala Pro  Lys Cys Leu Asp Glu  Asp Val Pro Met Glu  Glu
         5075              5080              5085

cga aag ggg gtt  cac gtc ggt aca ctt  agt cga ccg cct aaa  gtt         74470
Arg Lys Gly Val  His Val Gly Thr Leu  Ser Arg Pro Pro Lys  Val
         5090              5095              5100

tac tgt aat gga  aaa gaa gtt ccg att  ctg gat ttt cgt tgt  tcc         74515
Tyr Cys Asn Gly  Lys Glu Val Pro Ile  Leu Asp Phe Arg Cys  Ser
         5105              5110              5115

agc ccc tgg cct  aga cgc gtg aat att  tgg ggg gaa atc gac  ttt         74560
Ser Pro Trp Pro  Arg Arg Val Asn Ile  Trp Gly Glu Ile Asp  Phe
         5120              5125              5130

cgt ggg gat aag  ttt gac ccc cgc ttt  aac aca ttc cat gta  tat         74605
Arg Gly Asp Lys  Phe Asp Pro Arg Phe  Asn Thr Phe His Val  Tyr
         5135              5140              5145

gat att gtc gaa  aca aca gaa gcc gcg  tct aat gga gat gta  tcc         74650
Asp Ile Val Glu  Thr Thr Glu Ala Ala  Ser Asn Gly Asp Val  Ser
         5150              5155              5160

cgg ttt gca act  gca aca cga ccg ctt  ggt acc gtt att act  tta         74695
Arg Phe Ala Thr  Ala Thr Arg Pro Leu  Gly Thr Val Ile Thr  Leu
         5165              5170              5175
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ctt ggc atg tcc  cga tgt gga aaa agg  gtg gca gtt cat gta  tac      74740
Leu Gly Met Ser  Arg Cys Gly Lys Arg  Val Ala Val His Val  Tyr
        5180              5185              5190

ggc atc tgt caa  tat ttt tat ata aac  aaa gcc gag gtg gat  acc      74785
Gly Ile Cys Gln  Tyr Phe Tyr Ile Asn  Lys Ala Glu Val Asp  Thr
        5195              5200              5205

gct tgt ggc ata  cgt tcc ggt agc gag  tta tct gta tta ctt  gcc      74830
Ala Cys Gly Ile  Arg Ser Gly Ser Glu  Leu Ser Val Leu Leu  Ala
        5210              5215              5220

gag tgt tta cgc  agt tct atg ata aca  caa aat gat gca acg  tta      74875
Glu Cys Leu Arg  Ser Ser Met Ile Thr  Gln Asn Asp Ala Thr  Leu
        5225              5230              5235

aat gga gac aag  aac gct ttt cat ggt  acc tcg ttt aaa agc  gca      74920
Asn Gly Asp Lys  Asn Ala Phe His Gly  Thr Ser Phe Lys Ser  Ala
        5240              5245              5250

tct cca gaa agc  ttt cgc gtt gag gtt  att gag cgc aca gat  gtt      74965
Ser Pro Glu Ser  Phe Arg Val Glu Val  Ile Glu Arg Thr Asp  Val
        5255              5260              5265

tat tac tac gat  aca cag cca tgt gcg  ttt tac agg gtg tat  tct      75010
Tyr Tyr Tyr Asp  Thr Gln Pro Cys Ala  Phe Tyr Arg Val Tyr  Ser
        5270              5275              5280

ccc tca tct aaa  ttt aca aat tat ctt  tgt gat aac ttt cac  ccg      75055
Pro Ser Ser Lys  Phe Thr Asn Tyr Leu  Cys Asp Asn Phe His  Pro
        5285              5290              5295

gag ttg aaa aag  tat gaa ggt cgg gta  gac gct acc act cgt  ttt      75100
Glu Leu Lys Lys  Tyr Glu Gly Arg Val  Asp Ala Thr Thr Arg  Phe
        5300              5305              5310

cta atg gat aat  ccc ggc ttt gtt agt  ttt ggt tgg tat caa  cta      75145
Leu Met Asp Asn  Pro Gly Phe Val Ser  Phe Gly Trp Tyr Gln  Leu
        5315              5320              5325

aaa cct gga gtt  gat ggg gaa cgt gtt  cga gtt cga ccg gca  agt      75190
Lys Pro Gly Val  Asp Gly Glu Arg Val  Arg Val Arg Pro Ala  Ser
        5330              5335              5340

cgc caa tta acg  tta agc gac gtt gaa  att gac tgc atg tcg  gat      75235
Arg Gln Leu Thr  Leu Ser Asp Val Glu  Ile Asp Cys Met Ser  Asp
        5345              5350              5355

aat ctg cag gct  ata cca aac gat gac  tca tgg cct gac tac  aag      75280
Asn Leu Gln Ala  Ile Pro Asn Asp Asp  Ser Trp Pro Asp Tyr  Lys
        5360              5365              5370

ttg tta tgt ttc  gat att gaa tgt aaa  tca gga gga tct aat  gag      75325
Leu Leu Cys Phe  Asp Ile Glu Cys Lys  Ser Gly Gly Ser Asn  Glu
        5375              5380              5385
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333

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ctg gcg ttt ccc  gat gca aca cat ctg  gag gat ctt gta atc  caa      75370
Leu Ala Phe Pro  Asp Ala Thr His Leu  Glu Asp Leu Val Ile  Gln
        5390               5395               5400

att tct tgt cta  tta tat tca atc cct  cga cag tct tta gaa  cac      75415
Ile Ser Cys Leu  Leu Tyr Ser Ile Pro  Arg Gln Ser Leu Glu  His
        5405               5410               5415

att tta ctg ttt  tcc ctt ggc tct tgt  gac tta cca caa agg  tat      75460
Ile Leu Leu Phe  Ser Leu Gly Ser Cys  Asp Leu Pro Gln Arg  Tyr
        5420               5425               5430

gta caa gaa atg  aag gac gcg ggg tta  ccg gag ccg act gtg  ctg      75505
Val Gln Glu Met  Lys Asp Ala Gly Leu  Pro Glu Pro Thr Val  Leu
        5435               5440               5445

gag ttt gat agt  gaa ttc gag cta tta  att gca ttt atg acc  ctc      75550
Glu Phe Asp Ser  Glu Phe Glu Leu Leu  Ile Ala Phe Met Thr  Leu
        5450               5455               5460

gta aaa cag tac  gct ccc gag ttt gcc  aca ggt tat aac att  gtt      75595
Val Lys Gln Tyr  Ala Pro Glu Phe Ala  Thr Gly Tyr Asn Ile  Val
        5465               5470               5475

aat ttt gat tgg  gcg ttt att atg gag  aaa ctt aat tct ata  tac      75640
Asn Phe Asp Trp  Ala Phe Ile Met Glu  Lys Leu Asn Ser Ile  Tyr
        5480               5485               5490

agt ctc aag ctt  gat ggt tat ggc agt  ata aac cgt ggg ggt  ctg      75685
Ser Leu Lys Leu  Asp Gly Tyr Gly Ser  Ile Asn Arg Gly Gly  Leu
        5495               5500               5505

ttt aag ata tgg  gat gtt ggc aaa tcc  gga ttt cag cga cga  agc      75730
Phe Lys Ile Trp  Asp Val Gly Lys Ser  Gly Phe Gln Arg Arg  Ser
        5510               5515               5520

aag gta aag atc  aac ggt ctc ata tct  ctg gat atg tat gca  att      75775
Lys Val Lys Ile  Asn Gly Leu Ile Ser  Leu Asp Met Tyr Ala  Ile
        5525               5530               5535

gca act gaa aaa  tta aaa ctc tcg agt  tat aaa tta gat tcg  gtt      75820
Ala Thr Glu Lys  Leu Lys Leu Ser Ser  Tyr Lys Leu Asp Ser  Val
        5540               5545               5550

gca cgt gaa gct  cta aat gag tcc aag  aga gat ttg ccc tac  aaa      75865
Ala Arg Glu Ala  Leu Asn Glu Ser Lys  Arg Asp Leu Pro Tyr  Lys
        5555               5560               5565

gac att ccg gga  tat tac gct agt gga  ccg aat aca cga gga  att      75910
Asp Ile Pro Gly  Tyr Tyr Ala Ser Gly  Pro Asn Thr Arg Gly  Ile
        5570               5575               5580

att ggt gaa tat  tgt ata caa gac tcg  gct ctt gtg ggg aaa  ctg      75955
Ile Gly Glu Tyr  Cys Ile Gln Asp Ser  Ala Leu Val Gly Lys  Leu
        5585               5590               5595

ttt ttt aaa tat  tta cca cac ctt gag  tta tcc gcg gtt gca  agg      76000
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334

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Phe Phe Lys Tyr  Leu Pro His Leu Glu  Leu Ser Ala Val Ala  Arg
        5600              5605              5610

cta gct aga att  act tta acc aag gct  att tac gac gga cag  cag      76045
Leu Ala Arg Ile  Thr Leu Thr Lys Ala  Ile Tyr Asp Gly Gln  Gln
        5615              5620              5625

gtt agg att tac  acc tgt tta tta gga  ctg gct tcg tct cga  gga      76090
Val Arg Ile Tyr  Thr Cys Leu Leu Gly  Leu Ala Ser Ser Arg  Gly
        5630              5635              5640

ttt att tta ccc  gat ggg gga tac cca  gct act ttt gaa tat  aag      76135
Phe Ile Leu Pro  Asp Gly Gly Tyr Pro  Ala Thr Phe Glu Tyr  Lys
        5645              5650              5655

gat gtt att ccc  gat gtc ggg gat gtt  gag gaa gag atg gat  gaa      76180
Asp Val Ile Pro  Asp Val Gly Asp Val  Glu Glu Glu Met Asp  Glu
        5660              5665              5670

gac gag agc gtt  tct ccc act ggt acg  tca agt ggg cga aat  gta      76225
Asp Glu Ser Val  Ser Pro Thr Gly Thr  Ser Ser Gly Arg Asn  Val
        5675              5680              5685

gga tat aaa gga  gcc agg gtt ttt gac  cct gat acg gga ttt  tat      76270
Gly Tyr Lys Gly  Ala Arg Val Phe Asp  Pro Asp Thr Gly Phe  Tyr
        5690              5695              5700

atc gat ccg gtg  gtc gta ttg gat ttt  gca agt tta tat cca  agt      76315
Ile Asp Pro Val  Val Val Leu Asp Phe  Ala Ser Leu Tyr Pro  Ser
        5705              5710              5715

ata att cag gcc  cat aac tta tgt ttt  acc acg cta acg tta  aat      76360
Ile Ile Gln Ala  His Asn Leu Cys Phe  Thr Thr Leu Thr Leu  Asn
        5720              5725              5730

ttt gag acg gtt  aaa cgt ttg aat cca  tcc gat tat gcc acc  ttt      76405
Phe Glu Thr Val  Lys Arg Leu Asn Pro  Ser Asp Tyr Ala Thr  Phe
        5735              5740              5745

aca gtt gga gga  aaa cgt ctt ttt ttt  gtg cgc tct aac gtt  cga      76450
Thr Val Gly Gly  Lys Arg Leu Phe Phe  Val Arg Ser Asn Val  Arg
        5750              5755              5760

gaa agt ctg ctg  ggt gtt ctt tta aaa  gac tgg ttg gct atg  cgc      76495
Glu Ser Leu Leu  Gly Val Leu Leu Lys  Asp Trp Leu Ala Met  Arg
        5765              5770              5775

aag gct att aga  gcg cgc ata ccc gga  agt tct tca gat gaa  gca      76540
Lys Ala Ile Arg  Ala Arg Ile Pro Gly  Ser Ser Ser Asp Glu  Ala
        5780              5785              5790

gtg tta tta gac  aaa caa caa gcc gcg  ata aaa gta gtt tgt  aat      76585
Val Leu Leu Asp  Lys Gln Gln Ala Ala  Ile Lys Val Val Cys  Asn
        5795              5800              5805

tcc gtg tac ggt  ttt act gga gtt gcg  cag gga ttt ctg cca  tgt      76630
Ser Val Tyr Gly  Phe Thr Gly Val Ala  Gln Gly Phe Leu Pro  Cys
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                  5810                      5815                      5820

tta tac gta gcg  gcc act gtc act aca  att ggc cgt caa atg  tta    76675
Leu Tyr Val Ala  Ala Thr Val Thr Thr  Ile Gly Arg Gln Met  Leu
            5825                5830                5835

tta agt acc aga  gat tat att cat aat  aac tgg gcc gca ttt  gaa    76720
Leu Ser Thr Arg  Asp Tyr Ile His Asn  Asn Trp Ala Ala Phe  Glu
            5840                5845                5850

cgt ttt att aca  gcg ttt cca gac att  gaa agt agc gtt ctc  tcc    76765
Arg Phe Ile Thr  Ala Phe Pro Asp Ile  Glu Ser Ser Val Leu  Ser
            5855                5860                5865

caa aaa gcg tac  gag gta aag gtt ata  tat gga gat acg gat  tct    76810
Gln Lys Ala Tyr  Glu Val Lys Val Ile  Tyr Gly Asp Thr Asp  Ser
            5870                5875                5880

gtg ttt atc cga  ttc aag ggt gtt agt  gtt gag ggg ata gct  aaa    76855
Val Phe Ile Arg  Phe Lys Gly Val Ser  Val Glu Gly Ile Ala  Lys
            5885                5890                5895

atc ggc gag aaa  atg gca cat ata att  tca acg gct ctg ttt  tgt    76900
Ile Gly Glu Lys  Met Ala His Ile Ile  Ser Thr Ala Leu Phe  Cys
            5900                5905                5910

cct cct ata aag  ttg gag tgt gaa aaa  act ttt ata aaa ctt  ttg    76945
Pro Pro Ile Lys  Leu Glu Cys Glu Lys  Thr Phe Ile Lys Leu  Leu
            5915                5920                5925

ctt ata aca aag  aaa aag tac att ggg  gta att tac ggc gga  aag    76990
Leu Ile Thr Lys  Lys Lys Tyr Ile Gly  Val Ile Tyr Gly Gly  Lys
            5930                5935                5940

gtt tta atg aag  gga gtc gac ttg gtt  aga aaa aac aac tgt  caa    77035
Val Leu Met Lys  Gly Val Asp Leu Val  Arg Lys Asn Asn Cys  Gln
            5945                5950                5955

ttt att aac gat  tat gcc cgc aaa ctt  gta gaa ctg ttg tta  tat    77080
Phe Ile Asn Asp  Tyr Ala Arg Lys Leu  Val Glu Leu Leu Leu  Tyr
            5960                5965                5970

gac gac acc gtc  tcg cgt gct gcg gcg  gag gcg tcg tgt gtt  tcc    77125
Asp Asp Thr Val  Ser Arg Ala Ala Ala  Glu Ala Ser Cys Val  Ser
            5975                5980                5985

att gct gaa tgg  aat aga cgg gcc atg  ccg tct ggg atg gcc  ggg    77170
Ile Ala Glu Trp  Asn Arg Arg Ala Met  Pro Ser Gly Met Ala  Gly
            5990                5995                6000

ttt gga cgc ata  att gca gat gca cat  cgc cag att aca tca  ccc    77215
Phe Gly Arg Ile  Ile Ala Asp Ala His  Arg Gln Ile Thr Ser  Pro
            6005                6010                6015

aaa ttg gat att  aat aag ttt gtt atg  acg gcc gag ctt agt  cgt    77260
Lys Leu Asp Ile  Asn Lys Phe Val Met  Thr Ala Glu Leu Ser  Arg
            6020                6025                6030
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cca cca tcc gcc   tac ata aac cgt cgc   ttg gct cac tta aca   gta      77305
Pro Pro Ser Ala   Tyr Ile Asn Arg Arg   Leu Ala His Leu Thr   Val
            6035                  6040                  6045

tat tat aaa tta   gta atg aga cag ggt   caa atc cca aac gtt   cga      77350
Tyr Tyr Lys Leu   Val Met Arg Gln Gly   Gln Ile Pro Asn Val   Arg
            6050                  6055                  6060

gaa cgc atc cct   tat gtt att gtg gcc   ccc aca gac gaa gtg   gag      77395
Glu Arg Ile Pro   Tyr Val Ile Val Ala   Pro Thr Asp Glu Val   Glu
            6065                  6070                  6075

gct gat gca aaa   agt gta gct ttg cta   cgt gga gat cct tta   cag      77440
Ala Asp Ala Lys   Ser Val Ala Leu Leu   Arg Gly Asp Pro Leu   Gln
            6080                  6085                  6090

aat acc gca ggt   aaa cgg tgt ggg gaa   gca aag cgt aag tta   ata      77485
Asn Thr Ala Gly   Lys Arg Cys Gly Glu   Ala Lys Arg Lys Leu   Ile
            6095                  6100                  6105

ata tct gac tta   gcg gaa gat ccc att   cac gta aca tca cac   ggg      77530
Ile Ser Asp Leu   Ala Glu Asp Pro Ile   His Val Thr Ser His   Gly
            6110                  6115                  6120

ctg tct tta aac   att gac tat tat ttt   tct cat ctc att ggg   acg      77575
Leu Ser Leu Asn   Ile Asp Tyr Tyr Phe   Ser His Leu Ile Gly   Thr
            6125                  6130                  6135

gcg agt gta act   ttt aag gcg tta ttt   gga aac gac act aaa   ctc      77620
Ala Ser Val Thr   Phe Lys Ala Leu Phe   Gly Asn Asp Thr Lys   Leu
            6140                  6145                  6150

aca gaa cgg ctt   tta aaa cgt ttt att   cca gag aca cga gtt   gtt      77665
Thr Glu Arg Leu   Leu Lys Arg Phe Ile   Pro Glu Thr Arg Val   Val
            6155                  6160                  6165

aac gtt aaa atg   cta aac cgc ttg cag   gcg gca ggc ttt gtt   tgt      77710
Asn Val Lys Met   Leu Asn Arg Leu Gln   Ala Ala Gly Phe Val   Cys
            6170                  6175                  6180

ata cac gcc ccg   tgc tgg gat aat aaa   atg aac act gaa gct   gaa      77755
Ile His Ala Pro   Cys Trp Asp Asn Lys   Met Asn Thr Glu Ala   Glu
            6185                  6190                  6195

atc acc gag gag   gaa caa agt cat caa   ata atg cgt aga gtc   ttt      77800
Ile Thr Glu Glu   Glu Gln Ser His Gln   Ile Met Arg Arg Val   Phe
            6200                  6205                  6210

tgt att cca aaa   gca att ctc cat caa   agt taa ggtcacacat            77843
Cys Ile Pro Lys   Ala Ile Leu His Gln   Ser
            6215                  6220

tttacagtaa acgtccgatg ttccaatgga tggcaccaca gtctctgttt gttgttctgg   77903

gttgcgacat accgacagta aaaatgttgt ctgccaaacg tgtgcgacta ttttataccc   77963
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ccgacacgcg gcctgtatat gatcgattag tctgtaatgg aggtgaacag atttccccgg   78023

aaatataaca tacatcataa accctccggc atctccatca cgataaaaaa gtacgcgtat   78083

atctcgcatg cccccctccc tcataatatg atacataaaa aataattccg gttgtgccaa   78143

tacgctcgac aataggggtt cagcggacgc tgcttgcatg ttggctcggt ctgatagcgc   78203

caaaatggat gcaagaaaca cacgatattc gtatatgttg ttaagctgct gaacatatgc   78263

tagtatcaga gccgcccgat cggttcgaca tagacgcggt tctccagatg cagtgcatgt   78323

cggacaataa cctccgagac ctaaatgata acccattccg gataacgaca ggcagttatc   78383

cgccactgtc tgacccaagt taaacggaag ggtgacaggg gtcgtcttaa taattggcac   78443

gattaagcct ctaacggtag ctagttcttc tggggggggac cttgcgatgt aattaaaata   78503

atggcggtac acagaccgct cctttgacat aagttttcct cgaatggttt gacggcggca   78563

tggcgttctg gagcgtacac gcatcgaagg cccgctccga gatacggatt tatatcgcct   78623

agacatactt cgataggggtg tgttcgaggg agaccagcga tattgcatgt cgtcgaagca   78683

taagtcctcc atctcgtatg aatgcggcat tggcggttgg tttgcgtgga aaaatctggt   78743

aggctttaaa tgcatacgcc aatgtccaca ggccagcaca tacacgacct tcaaatctgt   78803

tttgtgcagc cagttgggct ttatataact ccaacacttc cttatccgcg gttgtaggat   78863

gggcaaataa aattttaggg tttgtctgta attccgagag agcgcatagg agatcgcaaa   78923

ataaatgttt atatacggcc tcggaacctg ctgcttttac aatggttatg aatcgaccct   78983

catcattaaa tggaaattta agtttaatgg ggttatctag gctccatgca ttgattacag   79043

gttcgataca gtcaaataaa cttgtgttat ttgctgagta tgctaatata tcccttttaa   79103

actgccgcaa agcgatccaa tagtgcccta tggttaataa acaacataac atgcattcgg   79163

tattcgtgcg accacggcac tttgcgtttt ttaaggtagt taacaaaata ggcccaaatg   79223

ctacttcggg acaggcatcc tcgctcgtaa atttggaaaa ttgttttgga acgtccctgg   79283

agttttcaat ccggttcgcc tgccagtatg atttaacaca tccaacgcga gtttctatag   79343

cacaatttgt acgctcgtct acattccaag tagcaacccc actcagtaat aataaagcca   79403

agtctgcgta accccaagct gcttctacgt aagacgattt tttaagtttg tctattaata   79463

tatcttcaaa ctctatatcc tcttttaatg cacgttccgc gcaggtaatc atcccacttg   79523

tgcgatgttc cgatgatgaa cagtcaacca tccgcgcgca atctttccaa ttagccaagg   79583

cggccgctaa aggttgaggg cctccagtca gtccgtcctg attaaagtaa aatgacttac   79643

gcgtttcggt ttcgtctaaa cgagacgtgc tgatcgatag taatgcagcc ctaactaccg   79703
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cctgtacaaa aaaggagtaa ttggaatatc ttactttgtt ggccatttcc ttaccggggg 79763

gcggtcgtat acctggtaac cctccatcgg tacgaaaaca tacatgcaaa aaaaaatgtc 79823

tttgtatatc taacagggaa agcgtgcgcc tggcaaagga cccaaccaaa gtaacgttat 79883

aacggcacag gtagtaacga tccataagat acacaaattc aaaggcagcg ctaaaagtga 79943

caactgcaca gggcggggat gccagacttt tcatacataa catggcgtag tccgcaaccc 80003

attccggtgt cagtccaaat ttacgtttat acaaatcaag cgttctgcag accaaacagg 80063

ctctgtctaa cgccaaaacg tctccaattt cttctataaa ttcagtggta cttgaggtca 80123

tttcattatc cacacctacc gccgaagagg cctcataagt gacgttgttt ctattgcac 80183

ggggaacatt tattaagtgg gaggcaaata acaattctga aaataacaaa tcgtttttta 80243

gcagaagggc tggattataa gcg atg tac gaa tcg gaa aat gcg tcg gaa 80293
                        Met Tyr Glu Ser Glu Asn Ala Ser Glu
                                     6225   6230

cac cat ccg gaa tta gaa gat gta ttt tcg gag aat acg ggc gat 80338
His His Pro Glu Leu Glu Asp Val Phe Ser Glu Asn Thr Gly Asp
             6235   6240   6245

tcg aat cca tcc atg ggt tct tct gat tct acc cga tcc atc tct 80383
Ser Asn Pro Ser Met Gly Ser Ser Asp Ser Thr Arg Ser Ile Ser
             6250   6255   6260

ggg atg agg gcc cgc gat tta att aca gac acc gat gtt aat cta 80428
Gly Met Arg Ala Arg Asp Leu Ile Thr Asp Thr Asp Val Asn Leu
             6265   6270   6275

tta aat atc gat gca ctg gag tca aag tat ttt cct gct gat agc 80473
Leu Asn Ile Asp Ala Leu Glu Ser Lys Tyr Phe Pro Ala Asp Ser
             6280   6285   6290

acc ttt act ctt tcc gtt tgg ttt gaa aat tta att ccc ccg gaa 80518
Thr Phe Thr Leu Ser Val Trp Phe Glu Asn Leu Ile Pro Pro Glu
             6295   6300   6305

ata gaa gca att cta cct aca act gac gct caa tta aat tat ata 80563
Ile Glu Ala Ile Leu Pro Thr Thr Asp Ala Gln Leu Asn Tyr Ile
             6310   6315   6320

tca ttt acc agt cgc ctg gcg tcc gtt tta aaa cat aaa gaa agt 80608
Ser Phe Thr Ser Arg Leu Ala Ser Val Leu Lys His Lys Glu Ser
             6325   6330   6335

aac gat tca gaa aaa tct gct tat gtt gtt cca tgt gaa cat agt 80653
Asn Asp Ser Glu Lys Ser Ala Tyr Val Val Pro Cys Glu His Ser
             6340   6345   6350

gcc agc gtg acc cgt cgc cgt gaa cgc ttt gcg gga gtc atg gcc 80698
Ala Ser Val Thr Arg Arg Arg Glu Arg Phe Ala Gly Val Met Ala

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aaa ttt cta gat ttg  cat gaa ata ttg aag  gat gct taa tacatgggga   80747
Lys Phe Leu Asp Leu  His Glu Ile Leu Lys  Asp Ala
                6370                  6375


aaataaacgc attaataagt cgtcagggggg tggatcactc caaactcctc ctatatccca   80807

cgataaatgg tctaaatact tcacgcgtgt gccttggttt gcaaccttag atcaat atg   80866
                                                               Met


tca cgg  aga acg tat gta cgg  agt gaa cgc agg agg  ggt tgc gga    80911
Ser Arg  Arg Thr Tyr Val Arg  Ser Glu Arg Arg Arg  Gly Cys Gly
    6380              6385              6390

gat aat  ctt tta caa cgt att  cgg ttg gtg gta cca  agc gct ctt    80956
Asp Asn  Leu Leu Gln Arg Ile  Arg Leu Val Val Pro  Ser Ala Leu
    6395              6400              6405

caa tgt  tgc gat ggg gat ctt  cca ata ttt gat cca  caa cgc ccc    81001
Gln Cys  Cys Asp Gly Asp Leu  Pro Ile Phe Asp Pro  Gln Arg Pro
    6410              6415              6420

ccc gcc  cgt tgt gtt ttt cag  ttt aac ggc gaa gac  aac gta tcc    81046
Pro Ala  Arg Cys Val Phe Gln  Phe Asn Gly Glu Asp  Asn Val Ser
    6425              6430              6435

gaa gcc  ttt ccg gta gag tat  att atg cgt tta atg  gcg aat tgg    81091
Glu Ala  Phe Pro Val Glu Tyr  Ile Met Arg Leu Met  Ala Asn Trp
    6440              6445              6450

gcg caa  gta gat tgt gac cct  tac ata aaa att caa  aat acg ggg    81136
Ala Gln  Val Asp Cys Asp Pro  Tyr Ile Lys Ile Gln  Asn Thr Gly
    6455              6460              6465

gtg tct  gtg cta ttt caa ggt  ttt ttt ttt cgt ccg  act aac gca    81181
Val Ser  Val Leu Phe Gln Gly  Phe Phe Phe Arg Pro  Thr Asn Ala
    6470              6475              6480

cca gtg  gct gaa gtg tcc att  gac agt aat aac gtg  att ctt agt    81226
Pro Val  Ala Glu Val Ser Ile  Asp Ser Asn Asn Val  Ile Leu Ser
    6485              6490              6495

tca acg  tta agt acc ggt atc  aac cta tct gct ttg  gaa tca att    81271
Ser Thr  Leu Ser Thr Gly Ile  Asn Leu Ser Ala Leu  Glu Ser Ile
    6500              6505              6510

aaa cga  ggt ggg ggt att gac  cgc cga cct ctc cag  gct tta atg    81316
Lys Arg  Gly Gly Gly Ile Asp  Arg Arg Pro Leu Gln  Ala Leu Met
    6515              6520              6525

tgg gtg  aac tgc ttt gtg cga  atg cca tat gtt cag  tta tcc ttt    81361
Trp Val  Asn Cys Phe Val Arg  Met Pro Tyr Val Gln  Leu Ser Phe
    6530              6535              6540

cgt ttt  atg gga ccg gaa gat  cca tct cgc acc att  aaa ctt atg    81406
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Arg Phe  Met Gly Pro Glu Asp  Pro Ser Arg Thr Ile  Lys Leu Met
    6545                 6550              6555

gcc cgc  gcc acg gat gca tac  atg tat aag gaa act  ggc aat aat    81451
Ala Arg  Ala Thr Asp Ala Tyr  Met Tyr Lys Glu Thr  Gly Asn Asn
    6560                 6565              6570

ttg gat  gaa tat ata cgc tgg  cgg cct tca ttc aga  tcc cca ccc    81496
Leu Asp  Glu Tyr Ile Arg Trp  Arg Pro Ser Phe Arg  Ser Pro Pro
    6575                 6580              6585

gag aac  gga agt cca aac acg  tct gtt caa atg caa  agt gac att    81541
Glu Asn  Gly Ser Pro Asn Thr  Ser Val Gln Met Gln  Ser Asp Ile
    6590                 6595              6600

aaa cct  gcg tta ccc gat acc  caa act acg cgt gtc  tgg aaa ctt    81586
Lys Pro  Ala Leu Pro Asp Thr  Gln Thr Thr Arg Val  Trp Lys Leu
    6605                 6610              6615

gct cta  ccc gta gct aac gtg  aca tat gcc ctg ttc  att gta att    81631
Ala Leu  Pro Val Ala Asn Val  Thr Tyr Ala Leu Phe  Ile Val Ile
    6620                 6625              6630

gta ctg  gta gtt gta tta ggg  gcg gtg ctt ttc tgg  aaa taa       81673
Val Leu  Val Val Val Leu Gly  Ala Val Leu Phe Trp  Lys
    6635                 6640              6645

attgcctttc cgtacatatc ctgcgcagat gtacgtgtat gctgttatcg attgtcccgt   81733

aaactaataa acg atg aca caa ccc  gca tcg tct cgt gta  gtc ttt gat   81782
           Met Thr Gln Pro  Ala Ser Ser Arg Val  Val Phe Asp
               6650              6655

ccc agc  aac ccc acc aca ttt  tcg gtg gaa gca att  gcg gct tac    81827
Pro Ser  Asn Pro Thr Thr Phe  Ser Val Glu Ala Ile  Ala Ala Tyr
    6660                 6665              6670

acc ccc  gtt gct tta ata cga  ctt tta aac gcc agt  gga cct ttg    81872
Thr Pro  Val Ala Leu Ile Arg  Leu Leu Asn Ala Ser  Gly Pro Leu
    6675                 6680              6685

caa cct  ggt cac cgt gtg gac  atc gct gat gcc aga  agc att tac    81917
Gln Pro  Gly His Arg Val Asp  Ile Ala Asp Ala Arg  Ser Ile Tyr
    6690                 6695              6700

acc gtg  gga gcc gcg gcc agt  gcc gcg cgt gca cgc  gct aac cat    81962
Thr Val  Gly Ala Ala Ala Ser  Ala Ala Arg Ala Arg  Ala Asn His
    6705                 6710              6715

aat gca  aat acg ata cgc cga  acg gcc atg ttt gcc  gag act gac    82007
Asn Ala  Asn Thr Ile Arg Arg  Thr Ala Met Phe Ala  Glu Thr Asp
    6720                 6725              6730

cct atg  aca tgg tta aga cca  acg gtt ggc tta aaa  cgt acg ttt    82052
Pro Met  Thr Trp Leu Arg Pro  Thr Val Gly Leu Lys  Arg Thr Phe
    6735                 6740              6745
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aac ccg  cgt att ata cga cca  caa ccc cca aat cca  tcc atg agt     82097
Asn Pro  Arg Ile Ile Arg Pro  Gln Pro Pro Asn Pro  Ser Met Ser
    6750              6755              6760

ttg gga  atc tcg ggg cct act  ata ttg ccg caa aaa  aca cag agc     82142
Leu Gly  Ile Ser Gly Pro Thr  Ile Leu Pro Gln Lys  Thr Gln Ser
    6765              6770              6775

gcc gat  cag tct gct tta caa  cag ccc gcc gcg ttg  gcg ttt tcg     82187
Ala Asp  Gln Ser Ala Leu Gln  Gln Pro Ala Ala Leu  Ala Phe Ser
    6780              6785              6790

gga tca  tcc ccg caa cac ccc  cca cct caa acg acg  tcg gca tcc     82232
Gly Ser  Ser Pro Gln His Pro  Pro Pro Gln Thr Thr  Ser Ala Ser
    6795              6800              6805

gtt gga  caa cag caa cac gtg  gtg tcg ggg tct tct  gga caa caa     82277
Val Gly  Gln Gln Gln His Val  Val Ser Gly Ser Ser  Gly Gln Gln
    6810              6815              6820

ccg caa  cag gga gca cag tca  agc act gtc cag cca  aca acc gga     82322
Pro Gln  Gln Gly Ala Gln Ser  Ser Thr Val Gln Pro  Thr Thr Gly
    6825              6830              6835

tca ccg  ccc gcg gcc caa ggc  gtg cca cag tct acc  ccg ccc cca     82367
Ser Pro  Pro Ala Ala Gln Gly  Val Pro Gln Ser Thr  Pro Pro Pro
    6840              6845              6850

acc caa  aat acc ccc cag ggg  ggt aag gga cag acc  ttg tca cac     82412
Thr Gln  Asn Thr Pro Gln Gly  Gly Lys Gly Gln Thr  Leu Ser His
    6855              6860              6865

acg gga  caa tct gga aac gct  tca aga agt cgt agg  gtg taa         82454
Thr Gly  Gln Ser Gly Asn Ala  Ser Arg Ser Arg Arg  Val
    6870              6875              6880

ataaaaatac acagaaaata atcgttgttt ttttttttc tttaataggc gctactttat   82514

atatatgttc catctaataa caatttaaca taccccaggc cttgaaatat atcttccgtg   82574

tggtccatta aaagtttacg tgtatatcta acgttgtcga tcatacgccg acatgcctgg   82634

cttaacagtg ccagtgctcc caaggcggtc cctcggacat aacgtcgacc ggtgactaca   82694

tcggcattaa caacgcgtac gtgcctagga acgcgacatg accgatgttc gtcgagactt   82754

agtacgatag aattttcact ctcactgcta tagccgtcag aaggttcact aaaatcactt   82814

tgatataggt ctctgttcgg tgagttaaac gggttagaag atacgcccca tgtgtgtacg   82874

tcccgcggaa agtttggcga cggctgtctt gttttatagt ttgtcaatag gtccgtttgg   82934

ggggcatcgg ctgccgtgtc aacccaagaa ggtaattggt tatttacagg gtggaatact   82994

gttttggagt tatacattcg agggtcattt tgatgccgtt tttgtgtttg atttgatttt   83054

tcaatccaag tccggtaaga tatcgagtca tctgtcggaa tggaggtaat ctcaagtatt   83114
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ggtttactga acgcttggtt taacgtttgg ttttgctgtg gattattttt ccaatccgac   83174

aattggttat ttggtggggt aatactttta caaacggttg ttttaatgga ggtggttaat   83234

tgcttaggta taagcacagc cgtttctgat tcggtttcca catacaaggg aatatctttt   83294

tggctaaggg ttgttttac gctttggggt ttcttaaaat tttgtaccac tatttgtgtg   83354

cccggttcta tgggctgcgc gggctggacg gtctgcgcgg gctgcgcggg ctgcgcgggc   83414

tgcgcgggct gcgcgggccg gacgggcatt tttttacatt tggaacttct aacaacttga   83474

acgggagact taaatagtgg ctccgttggg taaaaatcag ttgtgtcgag gtttgggggg   83534

ccttggggcg cataaccggc aataatttgc gagtaaaatg gatcatcggg acacgagggg   83594

aaagagtcct catcggagtc gatgtacggc aaatcaataa gagattctgg cccccaaaag   83654

accacataat ccggagctgg aatcgagtct tttcgttccc ataaaacata agagggattc   83714

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343

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344

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345

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346

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347

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348

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              Met Gly Ser Gln  Pro Thr Asn Ser His  Phe Thr
                            6885                6890

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Leu Asn Glu  Gln Thr Leu Cys Gly  Thr Asn Ile Ser Leu  Leu Gly
        6895                6900                6905

aat aac cgt  ttt att caa ata ggg  aac ggg ctt cat atg  act tat      94532
Asn Asn Arg  Phe Ile Gln Ile Gly  Asn Gly Leu His Met  Thr Tyr
        6910                6915                6920

gct ccg ggc  ttc ttc gga aat tgg  agt cgc gat tta aca  att ggc      94577
Ala Pro Gly  Phe Phe Gly Asn Trp  Ser Arg Asp Leu Thr  Ile Gly
        6925                6930                6935

cct cgc ttt  gga ggt ctg aac aaa  caa ccg ata cat gta  cca cca      94622
Pro Arg Phe  Gly Gly Leu Asn Lys  Gln Pro Ile His Val  Pro Pro
        6940                6945                6950

aaa cgt aca  gaa acc gcg tct att  caa gta acc ccc cgt  tca att      94667
Lys Arg Thr  Glu Thr Ala Ser Ile  Gln Val Thr Pro Arg  Ser Ile
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gtt att aat cgt atg aac aac att caa ata aat cca act tca att   94712
Val Ile Asn Arg Met Asn Asn Ile Gln Ile Asn Pro Thr Ser Ile
         6970   6975   6980

ggt aac ccg caa gtt acc att aga ctc ccg tta aat aat ttt aaa   94757
Gly Asn Pro Gln Val Thr Ile Arg Leu Pro Leu Asn Asn Phe Lys
         6985   6990   6995

tca acg aca cag cta atc caa caa gtg tca tta acc gat ttt ttt   94802
Ser Thr Thr Gln Leu Ile Gln Gln Val Ser Leu Thr Asp Phe Phe
         7000   7005   7010

cgt ccg gac att gag cat gct ggg tca atc gtc tta atc ctt cgt   94847
Arg Pro Asp Ile Glu His Ala Gly Ser Ile Val Leu Ile Leu Arg
         7015   7020   7025

cat cca tct gac atg att gga gaa gct aat aca ctt aca cag gct   94892
His Pro Ser Asp Met Ile Gly Glu Ala Asn Thr Leu Thr Gln Ala
         7030   7035   7040

gga cgt gac ccc gat gta cta cta gag ggt tta cga aac cta ttc   94937
Gly Arg Asp Pro Asp Val Leu Leu Glu Gly Leu Arg Asn Leu Phe
         7045   7050   7055

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Asn Ala Cys Thr Ala Pro Trp Thr Val Gly Glu Gly Gly Gly Leu
         7060   7065   7070

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Arg Ala Tyr Val Thr Ser Leu Ser Phe Ile Ala Ala Cys Arg Ala
         7075   7080   7085

gaa gaa tat acg gat aaa cag gca gcg gat gcc aac aga aca gca   95072
Glu Glu Tyr Thr Asp Lys Gln Ala Ala Asp Ala Asn Arg Thr Ala
         7090   7095   7100

att gtt tct gcc tat gga tgc agt cgt atg gaa acg cgg ctc ata   95117
Ile Val Ser Ala Tyr Gly Cys Ser Arg Met Glu Thr Arg Leu Ile
         7105   7110   7115

agg ttt tcg gag tgt tta cgt gcg atg gta caa tgt cat gta ttt   95162
Arg Phe Ser Glu Cys Leu Arg Ala Met Val Gln Cys His Val Phe
         7120   7125   7130

cca cat cga ttt ata agt ttt ttt ggg tcc ctg ctg gaa tat acc   95207
Pro His Arg Phe Ile Ser Phe Phe Gly Ser Leu Leu Glu Tyr Thr
         7135   7140   7145

att cag gat aat tta tgc aat ata acc gcc gtg gcc aaa ggt ccc   95252
Ile Gln Asp Asn Leu Cys Asn Ile Thr Ala Val Ala Lys Gly Pro
         7150   7155   7160

caa gaa gct gca cgt aca gac aaa act tca act cgc agg gtc aca   95297
Gln Glu Ala Ala Arg Thr Asp Lys Thr Ser Thr Arg Arg Val Thr
         7165   7170   7175

350

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Ala Asn Ile  Pro Ala Cys Val Phe  Trp Asp Val Asp Lys  Asp Leu
        7180             7185              7190

cat ctt tcc  gcg gac gga ctg aag  cat gtg ttc ttg gtt  ttt gta  95387
His Leu Ser  Ala Asp Gly Leu Lys  His Val Phe Leu Val  Phe Val
        7195             7200              7205

tat aca cag  cga cgc caa cga gaa  ggt gta aga ctg cat  ctt gca  95432
Tyr Thr Gln  Arg Arg Gln Arg Glu  Gly Val Arg Leu His  Leu Ala
        7210             7215              7220

tta agc caa  cta aac gaa caa tgt  ttt ggt cgt ggt att  ggc ttc  95477
Leu Ser Gln  Leu Asn Glu Gln Cys  Phe Gly Arg Gly Ile  Gly Phe
        7225             7230              7235

ctg tta gga  cgc ata cga gct gaa  aat gcc gcc tgg ggg  act gaa  95522
Leu Leu Gly  Arg Ile Arg Ala Glu  Asn Ala Ala Trp Gly  Thr Glu
        7240             7245              7250

ggg gtt gca  aat acc cac cag cca  tat aac aca agg gcg  ttg ccg  95567
Gly Val Ala  Asn Thr His Gln Pro  Tyr Asn Thr Arg Ala  Leu Pro
        7255             7260              7265

ctt gtg cag  tta tcc aat gac ccg  aca agc cct cga tgt  agt att  95612
Leu Val Gln  Leu Ser Asn Asp Pro  Thr Ser Pro Arg Cys  Ser Ile
        7270             7275              7280

ggc gaa att  aca gga gta aat tgg  aac ttg gct aga cag  cga ttg  95657
Gly Glu Ile  Thr Gly Val Asn Trp  Asn Leu Ala Arg Gln  Arg Leu
        7285             7290              7295

tat caa tgg  acc ggc gat ttt cgg  gga ctt ccc aca caa  tta tcc  95702
Tyr Gln Trp  Thr Gly Asp Phe Arg  Gly Leu Pro Thr Gln  Leu Ser
        7300             7305              7310

tgc atg tat  gcg gca tat acg tta  att gga aca att cca  tca gag  95747
Cys Met Tyr  Ala Ala Tyr Thr Leu  Ile Gly Thr Ile Pro  Ser Glu
        7315             7320              7325

tct gtg cgt  tat aca aga cgc atg  gaa cgg ttc gga ggt  tat aac  95792
Ser Val Arg  Tyr Thr Arg Arg Met  Glu Arg Phe Gly Gly  Tyr Asn
        7330             7335              7340

gtg cca act  att tgg tta gag ggg  gtt gtg tgg ggg ggt  aca aat  95837
Val Pro Thr  Ile Trp Leu Glu Gly  Val Val Trp Gly Gly  Thr Asn
        7345             7350              7355

aca tgg aac  gaa tgt tat tat taa agcatgtatg taaaataaac tgaatttaac  95891
Thr Trp Asn  Glu Cys Tyr Tyr
        7360

atagcgtggg ttttgcgtga tattatatac tggggagggg caggctgtac gtaaccatat  95951

ataagggagt ctacaatatt gtagaactaa ctcagctgtg agtttagggt ttaaaggttt  96011
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351

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attccggagc ctaaatacgt tatccgtt atg  gag ttc aaa aga att  ttt aat    96063
                              Met  Glu Phe Lys Arg Ile  Phe Asn
                              7365                 7370

acg gtt cat  gac att ata aac cga  tta tgt caa cat ggc  tac aag    96108
Thr Val His  Asp Ile Ile Asn Arg  Leu Cys Gln His Gly  Tyr Lys
        7375                 7380                 7385

gaa tac atc  att ccg ccc gaa tca  acc aca ccg gtg gaa  tta atg    96153
Glu Tyr Ile  Ile Pro Pro Glu Ser  Thr Thr Pro Val Glu  Leu Met
        7390                 7395                 7400

gag tat att  agc act atc gtc tca  aaa ctt aag gcg gtg  acg cga    96198
Glu Tyr Ile  Ser Thr Ile Val Ser  Lys Leu Lys Ala Val  Thr Arg
        7405                 7410                 7415

caa gat gag  cga gtg tac cga tgt  tgt gga gaa ctt atc  cat tgc    96243
Gln Asp Glu  Arg Val Tyr Arg Cys  Cys Gly Glu Leu Ile  His Cys
        7420                 7425                 7430

cgt att aac  cta cga tcc gtt tcc  atg gaa acg tgg ttg  act tcc    96288
Arg Ile Asn  Leu Arg Ser Val Ser  Met Glu Thr Trp Leu  Thr Ser
        7435                 7440                 7445

cca att ctc  tgt tta act ccc cga  gtc cgc caa gca att  gaa ggg    96333
Pro Ile Leu  Cys Leu Thr Pro Arg  Val Arg Gln Ala Ile  Glu Gly
        7450                 7455                 7460

cgg agg gac  gaa att cgt cgg gct  ata tta gaa ccg ttt  ttg aaa    96378
Arg Arg Asp  Glu Ile Arg Arg Ala  Ile Leu Glu Pro Phe  Leu Lys
        7465                 7470                 7475

gat caa tac  ccc gct tta gct acc  ctt gga cta cag tct  gct tta    96423
Asp Gln Tyr  Pro Ala Leu Ala Thr  Leu Gly Leu Gln Ser  Ala Leu
        7480                 7485                 7490

aag tac gaa  gac ttt tat tta act  aag tta gag gaa ggt  aaa tta    96468
Lys Tyr Glu  Asp Phe Tyr Leu Thr  Lys Leu Glu Glu Gly  Lys Leu
        7495                 7500                 7505

gag tcg ctt  tgc caa ttc ttt tta  aga ctg gcg gcc acc  gtg aca    96513
Glu Ser Leu  Cys Gln Phe Phe Leu  Arg Leu Ala Ala Thr  Val Thr
        7510                 7515                 7520

aca gaa atc  gta aac ctg cct aaa  atc gca act ctt att  ccc gga    96558
Thr Glu Ile  Val Asn Leu Pro Lys  Ile Ala Thr Leu Ile  Pro Gly
        7525                 7530                 7535

ata aat gat  ggt tat aca tgg act  gat gtc tgt cgg gta  ttt ttc    96603
Ile Asn Asp  Gly Tyr Thr Trp Thr  Asp Val Cys Arg Val  Phe Phe
        7540                 7545                 7550

aca gcg ttg  gca tgt cag aaa att  gtc ccg gct aca ccg  gtt atg    96648
Thr Ala Leu  Ala Cys Gln Lys Ile  Val Pro Ala Thr Pro  Val Met
        7555                 7560                 7565

atg ttt tta  ggt cga gag acc ggg  gca acg gcc agt tgt  tat tta    96693
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352

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Met Phe Leu  Gly Arg Glu Thr Gly  Ala Thr Ala Ser Cys  Tyr Leu
    7570                   7575                  7580

atg gac ccg  gaa tcc atc act gtt  ggg aga gct gtt cga  gct atc      96738
Met Asp Pro  Glu Ser Ile Thr Val  Gly Arg Ala Val Arg  Ala Ile
    7585                   7590                  7595

aca ggc gat  gtg gga acg gta tta  caa agt cga ggt gga  gtg gga      96783
Thr Gly Asp  Val Gly Thr Val Leu  Gln Ser Arg Gly Gly  Val Gly
    7600                   7605                  7610

att tct cta  cag agt ctg aat tta  ata cct acg gaa aat  caa acg      96828
Ile Ser Leu  Gln Ser Leu Asn Leu  Ile Pro Thr Glu Asn  Gln Thr
    7615                   7620                  7625

aaa ggt ctt  ctt gca gtt tta aaa  ctt tta gat tgc atg  gtt atg      96873
Lys Gly Leu  Leu Ala Val Leu Lys  Leu Leu Asp Cys Met  Val Met
    7630                   7635                  7640

gca att aac  agt gat tgt gaa cga  cca act gga gtt tgt  gtt tac      96918
Ala Ile Asn  Ser Asp Cys Glu Arg  Pro Thr Gly Val Cys  Val Tyr
    7645                   7650                  7655

ata gaa cca  tgg cac gtc gat cta  caa act gtt ttg gcc  aca cgt      96963
Ile Glu Pro  Trp His Val Asp Leu  Gln Thr Val Leu Ala  Thr Arg
    7660                   7665                  7670

gga atg ttg  gtt cgt gat gaa ata  ttt cga tgt gat aac  ata ttt      97008
Gly Met Leu  Val Arg Asp Glu Ile  Phe Arg Cys Asp Asn  Ile Phe
    7675                   7680                  7685

tgt tgt tta  tgg acc cca gat tta  ttt ttt gaa aga tac  cta agc      97053
Cys Cys Leu  Trp Thr Pro Asp Leu  Phe Phe Glu Arg Tyr  Leu Ser
    7690                   7695                  7700

tat cta aaa  ggg gct agt aat gtt  cag tgg act ctt ttt  gat aac      97098
Tyr Leu Lys  Gly Ala Ser Asn Val  Gln Trp Thr Leu Phe  Asp Asn
    7705                   7710                  7715

aga gcc gat  atc ctt cga aca tta  cac ggg gag gca ttc  act tca      97143
Arg Ala Asp  Ile Leu Arg Thr Leu  His Gly Glu Ala Phe  Thr Ser
    7720                   7725                  7730

acc tat tta  cgt tta gag aga gaa  gga tta ggc gtt tct  tct gtt      97188
Thr Tyr Leu  Arg Leu Glu Arg Glu  Gly Leu Gly Val Ser  Ser Val
    7735                   7740                  7745

ccc att caa  gat atc gca ttc aca  atc ata cgc agt gct  gct gta      97233
Pro Ile Gln  Asp Ile Ala Phe Thr  Ile Ile Arg Ser Ala  Ala Val
    7750                   7755                  7760

aca gga agc  ccc ttt tta atg ttc  aaa gat gcc tgt aat  cgt aat      97278
Thr Gly Ser  Pro Phe Leu Met Phe  Lys Asp Ala Cys Asn  Arg Asn
    7765                   7770                  7775

tat cat atg  aat acc caa gga aat  gct atc acg ggg tca  aat ttg      97323
Tyr His Met  Asn Thr Gln Gly Asn  Ala Ile Thr Gly Ser  Asn Leu
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353

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tgt acg gaa  att gtt caa aag gca  gac gct cat caa cat  ggc gta      97368
Cys Thr Glu  Ile Val Gln Lys Ala  Asp Ala His Gln His  Gly Val
        7795                 7800                 7805

tgt aat ctt  gcc agc ata aat ctt  aca acg tgc tta tcc  aaa ggc      97413
Cys Asn Leu  Ala Ser Ile Asn Leu  Thr Thr Cys Leu Ser  Lys Gly
        7810                 7815                 7820

cca gtg tca  ttt aat tta aac gac  ctt caa ttg aca gca  aga acg      97458
Pro Val Ser  Phe Asn Leu Asn Asp  Leu Gln Leu Thr Ala  Arg Thr
        7825                 7830                 7835

act gtt att  ttt tta aac ggg gtc  ctg gcg gct ggg aac  ttt cca      97503
Thr Val Ile  Phe Leu Asn Gly Val  Leu Ala Ala Gly Asn  Phe Pro
        7840                 7845                 7850

tgt aaa aaa  tca tgt aaa ggt gta  aaa aac aac cga tca  ctt ggc      97548
Cys Lys Lys  Ser Cys Lys Gly Val  Lys Asn Asn Arg Ser  Leu Gly
        7855                 7860                 7865

att ggc ata  caa ggg tta cat aca  act tgt ctc cgc tta  gga ttt      97593
Ile Gly Ile  Gln Gly Leu His Thr  Thr Cys Leu Arg Leu  Gly Phe
        7870                 7875                 7880

gat tta act  tcc caa cca gct aga  cgg tta aat gta caa  ata gcg      97638
Asp Leu Thr  Ser Gln Pro Ala Arg  Arg Leu Asn Val Gln  Ile Ala
        7885                 7890                 7895

gag tta atg  ttg tat gag aca atg  aaa aca agc atg gaa  atg tgt      97683
Glu Leu Met  Leu Tyr Glu Thr Met  Lys Thr Ser Met Glu  Met Cys
        7900                 7905                 7910

aag att ggc  ggc tta gcc ccg ttt  aag ggt ttt acc gaa  agt aaa      97728
Lys Ile Gly  Gly Leu Ala Pro Phe  Lys Gly Phe Thr Glu  Ser Lys
        7915                 7920                 7925

tat gct aag  gga tgg tta cac caa  gat ggg ttt tct acg  ata agt      97773
Tyr Ala Lys  Gly Trp Leu His Gln  Asp Gly Phe Ser Thr  Ile Ser
        7930                 7935                 7940

tat tta gat  tta cca tgg tgt acc  ctg cga gat gat att  tgc gct      97818
Tyr Leu Asp  Leu Pro Trp Cys Thr  Leu Arg Asp Asp Ile  Cys Ala
        7945                 7950                 7955

tat ggg tta  tac aac tcg cag ttc  tta gcg tta atg ccc  aca gtt      97863
Tyr Gly Leu  Tyr Asn Ser Gln Phe  Leu Ala Leu Met Pro  Thr Val
        7960                 7965                 7970

tca tct gca  cag gta acg gag tgc  agt gag ggt ttc tct  cca att      97908
Ser Ser Ala  Gln Val Thr Glu Cys  Ser Glu Gly Phe Ser  Pro Ile
        7975                 7980                 7985

tat aat aat  atg ttt agt aag gtc  acc acc tcg ggt gag  tta ctt      97953
Tyr Asn Asn  Met Phe Ser Lys Val  Thr Thr Ser Gly Glu  Leu Leu
        7990                 7995                 8000
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aga ccc aac  tta gac ctt atg gac  gaa cta aga gat atg  tat tca    97998
Arg Pro Asn  Leu Asp Leu Met Asp  Glu Leu Arg Asp Met  Tyr Ser
        8005                 8010                 8015

tgt gaa gaa  aaa cga ctg gaa gtt  ata aac ata ctt gag  aaa aac    98043
Cys Glu Glu  Lys Arg Leu Glu Val  Ile Asn Ile Leu Glu  Lys Asn
        8020                 8025                 8030

caa tgg tca  gta ata cgt tcg ttt  ggc tgt tta tct aat  agt cac    98088
Gln Trp Ser  Val Ile Arg Ser Phe  Gly Cys Leu Ser Asn  Ser His
        8035                 8040                 8045

cca ctc tta  aaa tat aaa aca gcg  ttt gaa tat gag caa  gag gat    98133
Pro Leu Leu  Lys Tyr Lys Thr Ala  Phe Glu Tyr Glu Gln  Glu Asp
        8050                 8055                 8060

ctc gtt gat  atg tgt gca gaa agg  gcg cca ttt att gac  caa agt    98178
Leu Val Asp  Met Cys Ala Glu Arg  Ala Pro Phe Ile Asp  Gln Ser
        8065                 8070                 8075

caa tca atg  act tta ttt att gag  gaa cgc cca gac ggg  aca att    98223
Gln Ser Met  Thr Leu Phe Ile Glu  Glu Arg Pro Asp Gly  Thr Ile
        8080                 8085                 8090

ccc gcc tcc  aaa ata atg aat ttg  ctt ata cgt gcc tat  aaa gcc    98268
Pro Ala Ser  Lys Ile Met Asn Leu  Leu Ile Arg Ala Tyr  Lys Ala
        8095                 8100                 8105

ggc ctt aaa  acg ggt atg tac tac  tgt aaa att cgt aaa  gct acg    98313
Gly Leu Lys  Thr Gly Met Tyr Tyr  Cys Lys Ile Arg Lys  Ala Thr
        8110                 8115                 8120

aac agc gga  ctg ttt gcg gga ggc  gaa tta acc tgt acc  agt tgt    98358
Asn Ser Gly  Leu Phe Ala Gly Gly  Glu Leu Thr Cys Thr  Ser Cys
        8125                 8130                 8135

gct tta taa atttacacgg gaaactattc caaa atg  gat cag aaa gat tgc    98409
Ala Leu                                 Met  Asp Gln Lys Asp Cys
                                        8140                 8145

agt cat ttt ttt tac  agg ccg gag tgt cca  gat ata aac aat tta    98454
Ser His Phe Phe Tyr  Arg Pro Glu Cys Pro  Asp Ile Asn Asn Leu
            8150                 8155                 8160

cgt gcc ctg agc att  tcg aat cgt tgg tta  gaa agc gat ttt atc    98499
Arg Ala Leu Ser Ile  Ser Asn Arg Trp Leu  Glu Ser Asp Phe Ile
            8165                 8170                 8175

att gaa gat gat tat  caa tac ttg gac tgt  tta acg gaa gat gaa    98544
Ile Glu Asp Asp Tyr  Gln Tyr Leu Asp Cys  Leu Thr Glu Asp Glu
            8180                 8185                 8190

cta ata ttc tac aga  ttt att ttt aca ttt  tta tcg gcg gca gat    98589
Leu Ile Phe Tyr Arg  Phe Ile Phe Thr Phe  Leu Ser Ala Ala Asp
            8195                 8200                 8205
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355

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gat ctg gta aat gtt  aat ttg ggc tct cta  acc caa ctc ttt tcc       98634
Asp Leu Val Asn Val  Asn Leu Gly Ser Leu  Thr Gln Leu Phe Ser
            8210              8215                  8220

caa aag gat att cac  cat tac tac att gaa  caa gag tgc atc gag       98679
Gln Lys Asp Ile His  His Tyr Tyr Ile Glu  Gln Glu Cys Ile Glu
            8225              8230                  8235

gtt gtc cac gcg cgt  gtc tat agt caa att  caa cta atg ttg ttc       98724
Val Val His Ala Arg  Val Tyr Ser Gln Ile  Gln Leu Met Leu Phe
            8240              8245                  8250

aga ggg gat gaa tcg  ttg cgg gta caa tac  gta aat gtc act att       98769
Arg Gly Asp Glu Ser  Leu Arg Val Gln Tyr  Val Asn Val Thr Ile
            8255              8260                  8265

aat aat ccg tcg atc  caa caa aaa gta caa  tgg ttg gaa gaa aag       98814
Asn Asn Pro Ser Ile  Gln Gln Lys Val Gln  Trp Leu Glu Glu Lys
            8270              8275                  8280

gta cgg gac aac cca  tcc gtt gca gaa aaa  tat ata cta atg att       98859
Val Arg Asp Asn Pro  Ser Val Ala Glu Lys  Tyr Ile Leu Met Ile
            8285              8290                  8295

ctt ata gag ggc att  ttt ttt gta tca tcg  ttc gcg gct att gca       98904
Leu Ile Glu Gly Ile  Phe Phe Val Ser Ser  Phe Ala Ala Ile Ala
            8300              8305                  8310

tat tta cgc aat aac  gga cta ttt gtt gta  act tgt caa ttt aac       98949
Tyr Leu Arg Asn Asn  Gly Leu Phe Val Val  Thr Cys Gln Phe Asn
            8315              8320                  8325

gac ctt ata agc cga  gat gaa gcc ata cat  acc agc gca tcg tgt       98994
Asp Leu Ile Ser Arg  Asp Glu Ala Ile His  Thr Ser Ala Ser Cys
            8330              8335                  8340

tgt ata tac aat aac  tat gta ccc gaa aaa  ccc gct atc acc aga       99039
Cys Ile Tyr Asn Asn  Tyr Val Pro Glu Lys  Pro Ala Ile Thr Arg
            8345              8350                  8355

ata cat caa ctg ttt  tcg gaa gcc gtt gaa  atc gag tgt gcg ttt       99084
Ile His Gln Leu Phe  Ser Glu Ala Val Glu  Ile Glu Cys Ala Phe
            8360              8365                  8370

tta aaa tcc cat gca  ccc aaa acc cgt ttg  gtg aac gtc gat gca       99129
Leu Lys Ser His Ala  Pro Lys Thr Arg Leu  Val Asn Val Asp Ala
            8375              8380                  8385

att aca caa tac gtg  aaa ttc agc gcg gac  agg ctt tta tca gcg       99174
Ile Thr Gln Tyr Val  Lys Phe Ser Ala Asp  Arg Leu Leu Ser Ala
            8390              8395                  8400

att aat gta cca aaa  cta ttt aac acc cca  cct ccc gat tcg gac       99219
Ile Asn Val Pro Lys  Leu Phe Asn Thr Pro  Pro Pro Asp Ser Asp
            8405              8410                  8415

ttt cca ctt gca ttt  atg att gca gat aaa  aac aca aat ttt ttt       99264
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356

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Phe Pro Leu Ala Phe  Met Ile Ala Asp Lys  Asn Thr Asn Phe Phe
              8420               8425            8430

gag aga cac agt aca  tct tat gcg ggc aca  gtg ata aac gat tta      99309
Glu Arg His Ser Thr  Ser Tyr Ala Gly Thr  Val Ile Asn Asp Leu
              8435               8440            8445

taa catgtatata cgagcaaaat aaaacaatga accattaagt cgctcttatg         99362

tgtgttttaa ttccaatatt ttgttaatac agtgtttagt gggagtggag taggaataaa  99422

ctgtttaaaa atacgtgcgt attggcgagc catttttttcc ccctttaagt tatgatataa  99482

ggtgttaata accatatatg ggtctgccgt attttgcata atatttacac gtttcattaa   99542

ctttaggcga ccgcgggtca atggagttac cacggcgatt atatgttcaa caaatgcgcg   99602

ttccaaatta tccaatgggg aggatgaggg tggcagaagg tttaaagccc aactggcgtc   99662

tactgtcacc tccgatcggt tagatgcata tttggaaacg gacactccgt tttctgtttt   99722

acccgacgtg gctacggtaa gactttttgaa aacctcgcca tgtctccacg agtcgtaagt   99782

gggggagcgc gttgaagtgt ccatttgatg tggaactttc aggccggtat cctgaataac   99842

ttgctgaaca gattttaggt tgtcacttgt atgcaaatcg gtctgacagc gaacaaaggc   99902

aaccaaaaat tcagggtatg taattcctaa atattgaagc aaatcgcgac atcgtactac   99962

tggagcaaac ataggaattg catctaacaa aatatcacag cccatgaaga gtaaatcagt  100022

atctgtcgta taaaccaaag ccactgtacg cgtatgaaat aagtttgcac atgcctcgtc  100082

cgcctcaatg tcaaccgcct cgacgtatgc atacccatc catctaataa gacttgcaca  100142

caatttgtga tataatcgat ggttaggatg tcctcgggat ggcattgtag aggtaagact  100202

gcatacgttt tggtcgcgca ggcagatcgt cttgtcagtt tgtcgtggac aaccgtccaa  100262

aaacatatcc tgggatttgt tttcttcgct aggaatacaa ctcgtggaag agtttcgaaa  100322

cacactgtca tatgtttccg atgttttgtt atacttgata gaacatgatg tgttggatga  100382

tagtagaaca cgggttaagt ccgaggttcc cctttcatcg tggttcatgg cccgtgacat  100442

aattgccttg gctccacgtg ataatgggcc gtctgtacaa cgttccaata caaatatcgg  100502

atagtatgac cgttgtgtta atagccgcaa taagactcca agacaatgta tcgttacaga  100562

tggtccgtgt aaattctcgc gtttacccac agggtataaa cgttccaaca atgtgtacat  100622

gacgttccat acgtctaccg ccacgggggt taaaactccg ggtggcgttg aaatgatgct  100682

gggtttaacc agtttatgtt catggataaa gcgtgtcagt ccaaagagcc ccatcaatac  100742

acttaaccaa gtttatatcg tcttgtgaaa ggtttcacag cggcttcagt aattcttcga  100802
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357

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tgtgatcttg tgttaattac agacgtatat aatgatgtac atatttttta tgacaaacat 100862

tacatcaaat ctggtaactt cttacgtatt ttattgcaca gtccctatta aggaacaccc 100922

cctgtattgg aacacgtgga aatgttccct cccatgggcc gtactattca aatatcatgc 100982

ctgtttatgt acttaagtca ccggatcggg ttaaacaaac atattaacga aactcgtgtg 101042

tttacatatg attacttttt ctatagtaaa cattttaagt agtaaatt atg gat ttg 101099
                                                       Met Asp Leu
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agg tcg  cgt aca gac gat gct  ttg gac atg gaa ttg  cat gcg ggt    101144
Arg Ser  Arg Thr Asp Asp Ala  Leu Asp Met Glu Leu  His Ala Gly
    8450                 8455                 8460

ttt gac  gcc cca gaa atc gcc  aga gct gtt tta acg  gaa aaa acg    101189
Phe Asp  Ala Pro Glu Ile Ala  Arg Ala Val Leu Thr  Glu Lys Thr
    8465                 8470                 8475

ctt act  ggt tta att tcg tct  ata tca cct ctg gtt  aat aga cta    101234
Leu Thr  Gly Leu Ile Ser Ser  Ile Ser Pro Leu Val  Asn Arg Leu
    8480                 8485                 8490

agg gat  tct att tta ata ttc  agc gac gaa gga tta  att att cac    101279
Arg Asp  Ser Ile Leu Ile Phe  Ser Asp Glu Gly Leu  Ile Ile His
    8495                 8500                 8505

tgt agt  ttg gaa aca gaa caa  ctg tat att cct ata  ccg gca aat    101324
Cys Ser  Leu Glu Thr Glu Gln  Leu Tyr Ile Pro Ile  Pro Ala Asn
    8510                 8515                 8520

atg ttt  gac cag tat aat tgg  act ggg ccg aga atg  gtt gta ctc    101369
Met Phe  Asp Gln Tyr Asn Trp  Thr Gly Pro Arg Met  Val Val Leu
    8525                 8530                 8535

gcg gca  acg gag gga cgg tcc  tcg ctt att gac gcg  ttt cgc cat    101414
Ala Ala  Thr Glu Gly Arg Ser  Ser Leu Ile Asp Ala  Phe Arg His
    8540                 8545                 8550

aca aaa  gat ccg tcg acc cca  aca cgg tta tat ttt  aaa ttt acc    101459
Thr Lys  Asp Pro Ser Thr Pro  Thr Arg Leu Tyr Phe  Lys Phe Thr
    8555                 8560                 8565

gga caa  ccc ccc gag cgg agt  att atc caa acg atg  gta tgg caa    101504
Gly Gln  Pro Pro Glu Arg Ser  Ile Ile Gln Thr Met  Val Trp Gln
    8570                 8575                 8580

cgc ccg  ggt gat tgt ggt cca  gat gat caa gta caa  tgt tac aaa    101549
Arg Pro  Gly Asp Cys Gly Pro  Asp Asp Gln Val Gln  Cys Tyr Lys
    8585                 8590                 8595

caa gtt  gta aaa cgt gaa ctc  gct tgt tat aca atg  atg ttt cca    101594
Gln Val  Val Lys Arg Glu Leu  Ala Cys Tyr Thr Met  Met Phe Pro
    8600                 8605                 8610

aat cta  act cca gat ata agc  att tgc tta aaa cgc  gat caa ttc    101639
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Asn Leu  Thr Pro Asp Ile Ser  Ile Cys Leu Lys Arg  Asp Gln Phe
    8615                8620                8625

acc cgt  tta cag cga cta ctt  aaa act ttt ggg ttt  aca aca tgc   101684
Thr Arg  Leu Gln Arg Leu Leu  Lys Thr Phe Gly Phe  Thr Thr Cys
    8630                8635                8640

ttc att  cta aca gcc acg gat  atg tac atc cag acc  gcc ggg ggt   101729
Phe Ile  Leu Thr Ala Thr Asp  Met Tyr Ile Gln Thr  Ala Gly Gly
    8645                8650                8655

ggt ttt  atc tca ttt aat gtt  tcc ttg gat ata aac  gga agc aag   101774
Gly Phe  Ile Ser Phe Asn Val  Ser Leu Asp Ile Asn  Gly Ser Lys
    8660                8665                8670

cct aca  cca tat aat tta ata  cgc tca atc aca aat  tca aaa agg   101819
Pro Thr  Pro Tyr Asn Leu Ile  Arg Ser Ile Thr Asn  Ser Lys Arg
    8675                8680                8685

atc ctt  aat aat gtt gtt tat  ggc agc ggg agt atg  cgt gaa ttt   101864
Ile Leu  Asn Asn Val Val Tyr  Gly Ser Gly Ser Met  Arg Glu Phe
    8690                8695                8700

gga gta  tta ttg gaa aca cac  agt gga ttc cgt tct  gcc gta caa   101909
Gly Val  Leu Leu Glu Thr His  Ser Gly Phe Arg Ser  Ala Val Gln
    8705                8710                8715

aat ctt  aag tta aca cgg gat  gag acg tgt tat att  aat ttt tat   101954
Asn Leu  Lys Leu Thr Arg Asp  Glu Thr Cys Tyr Ile  Asn Phe Tyr
    8720                8725                8730

ctc gcc  tta act aac tcc ccc  atg gtt gga ttg tat  atc caa cgt   101999
Leu Ala  Leu Thr Asn Ser Pro  Met Val Gly Leu Tyr  Ile Gln Arg
    8735                8740                8745

tcc gca  ccc gtg cat tct ttt  ttt tat gca acg ttc  tta agt ccc   102044
Ser Ala  Pro Val His Ser Phe  Phe Tyr Ala Thr Phe  Leu Ser Pro
    8750                8755                8760

aaa gac  ctt aaa gaa aaa tta  acc tcg atg caa tta  ttt gcg aac   102089
Lys Asp  Leu Lys Glu Lys Leu  Thr Ser Met Gln Leu  Phe Ala Asn
    8765                8770                8775

atg gaa  tct gtg aag gat gaa  cca cca tta aaa aaa  aga cgc aat   102134
Met Glu  Ser Val Lys Asp Glu  Pro Pro Leu Lys Lys  Arg Arg Asn
    8780                8785                8790

tta tta  aca aaa aga aac gaa  aaa aat acc gga aat  aaa atg ggg   102179
Leu Leu  Thr Lys Arg Asn Glu  Lys Asn Thr Gly Asn  Lys Met Gly
    8795                8800                8805

ggg aaa  ctc ccc gaa acc aca  tgg cag gag gga atc  gga att cgc   102224
Gly Lys  Leu Pro Glu Thr Thr  Trp Gln Glu Gly Ile  Gly Ile Arg
    8810                8815                8820

gaa tat  tgt gtg gct cct cca  gtg gac cct gca gga  acc ctg gat   102269
Glu Tyr  Cys Val Ala Pro Pro  Val Asp Pro Ala Gly  Thr Leu Asp
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```
tat tct gaa tta tca cgt gaa  tct gac gta ata tgt  aca gtt aaa    102314
Tyr Ser Glu Leu Ser Arg Glu  Ser Asp Val Ile Cys  Thr Val Lys
    8840            8845            8850
```

```
taa gtgcaacttt tgcttatatt ttacatacaa acttgtgtgt accatagatg       102367
```

```
aacacatttt tatttgtttt gaattattaa acttaagac atg gcc  gtg aat ggt  102421
                                           Met Ala  Val Asn Gly
                                                    8855
```

```
gaa aga gct gtc cat gat gaa  aac ctg ggt gtg tta  gac aga gaa    102466
Glu Arg Ala Val His Asp Glu  Asn Leu Gly Val Leu  Asp Arg Glu
    8860            8865            8870
```

```
tta atc cgc gct caa tca atc  caa gga tgt gtc gga  aac cct caa    102511
Leu Ile Arg Ala Gln Ser Ile  Gln Gly Cys Val Gly  Asn Pro Gln
    8875            8880            8885
```

```
gaa tgt aat tcg tgt gca ata  acc tca gca tcg cgg  ttg ttt ctc    102556
Glu Cys Asn Ser Cys Ala Ile  Thr Ser Ala Ser Arg  Leu Phe Leu
    8890            8895            8900
```

```
gtg gga cta caa gca agc gtt  atc acg tcc ggg tta  att tta caa    102601
Val Gly Leu Gln Ala Ser Val  Ile Thr Ser Gly Leu  Ile Leu Gln
    8905            8910            8915
```

```
tat cac gtc tgc gaa gct gcc  gtc aat gca act att  atg ggg ttg    102646
Tyr His Val Cys Glu Ala Ala  Val Asn Ala Thr Ile  Met Gly Leu
    8920            8925            8930
```

```
atc gtc gtt tcg ggg tta tgg  cca aca tcc gtg aaa  ttt cta cgc    102691
Ile Val Val Ser Gly Leu Trp  Pro Thr Ser Val Lys  Phe Leu Arg
    8935            8940            8945
```

```
aca tta gca aaa ttg gga cga  tgt ttg cag acg gtg  gtc gtg ttg    102736
Thr Leu Ala Lys Leu Gly Arg  Cys Leu Gln Thr Val  Val Val Leu
    8950            8955            8960
```

```
ggt ttt gct gtg tta tgg gcg  gtt ggt tgc cca ata  tcc cgg gat    102781
Gly Phe Ala Val Leu Trp Ala  Val Gly Cys Pro Ile  Ser Arg Asp
    8965            8970            8975
```

```
ctt cca ttt gta gaa tta ctg  gga att tcc ata tcc  gcg att acc    102826
Leu Pro Phe Val Glu Leu Leu  Gly Ile Ser Ile Ser  Ala Ile Thr
    8980            8985            8990
```

```
gga aca gtg gct gct gtg cat  atc cat tac tac aac  ttt gtt acg    102871
Gly Thr Val Ala Ala Val His  Ile His Tyr Tyr Asn  Phe Val Thr
    8995            9000            9005
```

```
aca ttc aat gga ccg cat att  tat ttt tat gtt atg  atg ttg gga    102916
Thr Phe Asn Gly Pro His Ile  Tyr Phe Tyr Val Met  Met Leu Gly
    9010            9015            9020
```

```
act ggg ttg gga ggt tta cta  acc gtt att tta tat  atg tat gtc    102961
```

```
Thr Gly  Leu Gly Gly Leu Leu  Thr Val Ile Leu Tyr  Met Tyr Val
    9025                9030               9035

agt aaa  tat gag gtt ctt att  gga ttg tgt ata tct  att gtc aca    103006
Ser Lys  Tyr Glu Val Leu Ile  Gly Leu Cys Ile Ser  Ile Val Thr
    9040                9045               9050

cta gtt  tca att gtc gat gcc  gcc acc gat ttg caa  gat acg tgt    103051
Leu Val  Ser Ile Val Asp Ala  Ala Thr Asp Leu Gln  Asp Thr Cys
    9055                9060               9065

ata tat  cgt aaa aat cgc cat  aag caa tta aac act  tat aca gat    103096
Ile Tyr  Arg Lys Asn Arg His  Lys Gln Leu Asn Thr  Tyr Thr Asp
    9070                9075               9080

tta ggt  ttt gcc gtt gta tat  aca caa aat gac cgc  ggg aga gta    103141
Leu Gly  Phe Ala Val Val Tyr  Thr Gln Asn Asp Arg  Gly Arg Val
    9085                9090               9095

tgt gac  cat cga gaa agt tcc  cgg acc ctt aaa cgc  gtg ttt aaa    103186
Cys Asp  His Arg Glu Ser Ser  Arg Thr Leu Lys Arg  Val Phe Lys
    9100                9105               9110

gga att  cgt ata atg tct gtt  ata ccc ccg gtg tta  tat ata gtt    103231
Gly Ile  Arg Ile Met Ser Val  Ile Pro Pro Val Leu  Tyr Ile Val
    9115                9120               9125

acc cca  tta atg tgg gca atc  tca cat ata att aaa  tta aat cat    103276
Thr Pro  Leu Met Trp Ala Ile  Ser His Ile Ile Lys  Leu Asn His
    9130                9135               9140

ttt atc  aaa ctt aca caa gta  acg tta gca gtt tca  ata gga ggt    103321
Phe Ile  Lys Leu Thr Gln Val  Thr Leu Ala Val Ser  Ile Gly Gly
    9145                9150               9155

cat att  ata gca ttt ggg tta  cag ggt ttt gcc gtt  tta tat caa    103366
His Ile  Ile Ala Phe Gly Leu  Gln Gly Phe Ala Val  Leu Tyr Gln
    9160                9165               9170

gaa aaa  aaa aac cta tgg gta  att gta tta tat aca  acg acc tcg    103411
Glu Lys  Lys Asn Leu Trp Val  Ile Val Leu Tyr Thr  Thr Thr Ser
    9175                9180               9185

gtg acg  ggt ata gct gta aca  ttt gcc ggc att tca  tgg gga gct    103456
Val Thr  Gly Ile Ala Val Thr  Phe Ala Gly Ile Ser  Trp Gly Ala
    9190                9195               9200

att ata  att cta aca tca aca  gtt gcg gcg ggt ttg  acg tgt att    103501
Ile Ile  Ile Leu Thr Ser Thr  Val Ala Ala Gly Leu  Thr Cys Ile
    9205                9210               9215

cag atg  atg aga cta agc gtt  aaa cct att gac tgt  ttt atg gca    103546
Gln Met  Met Arg Leu Ser Val  Lys Pro Ile Asp Cys  Phe Met Ala
    9220                9225               9230

tct cat  atc act aaa gta tat  cac gtg tgt gtt tat  att ata ata    103591
Ser His  Ile Thr Lys Val Tyr  His Val Cys Val Tyr  Ile Ile Ile
```

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aat cta tgc tat cta tgt ggt  aca tat gta tcg taa tcgagataaa    103637
Asn Leu Cys Tyr Leu Cys Gly  Thr Tyr Val Ser
    9250                9255


taaagttttt aaagttgcaa aagccgtttt tattattccc aatgtcgaaa aaaacgtttc 103697


catcatttaa attccgcggt gggtgtttta atcttttatt taaggggagc gtggatgtgt 103757


caataaaaac cagg atg  aag cgg ata caa ata  aat tta att tta acg    103804
              Met  Lys Arg Ile Gln Ile  Asn Leu Ile Leu Thr
              9260              9265                9270


atc gcg tgt ata caa  tta tcg act gaa tct  caa ccc aca ccc gta    103849
Ile Ala Cys Ile Gln  Leu Ser Thr Glu Ser  Gln Pro Thr Pro Val
            9275              9280                9285


agt ata act gaa tta  tat acc tcg gcc gct  acc cga aag ccc gat    103894
Ser Ile Thr Glu Leu  Tyr Thr Ser Ala Ala  Thr Arg Lys Pro Asp
            9290              9295                9300


ccc gcc gtc gcg ccc  acc tcg gcc gct tcc  cga aag ccc gat ccc    103939
Pro Ala Val Ala Pro  Thr Ser Ala Ala Ser  Arg Lys Pro Asp Pro
            9305              9310                9315


gcc gtc gcg ccc acc  tcg gcc gct tcc cga  aag ccc gat ccc gcc    103984
Ala Val Ala Pro Thr  Ser Ala Ala Ser Arg  Lys Pro Asp Pro Ala
            9320              9325                9330


gtc gcg ccc acc tcg  gcc gct tcc cga aag  ccc gat ccc gcc gtc    104029
Val Ala Pro Thr Ser  Ala Ala Ser Arg Lys  Pro Asp Pro Ala Val
            9335              9340                9345


gcg ccc acc tcg gcc  gct acc cga aag ccc  gat ccc gcc gtc gcg    104074
Ala Pro Thr Ser Ala  Ala Thr Arg Lys Pro  Asp Pro Ala Val Ala
            9350              9355                9360


ccc acc tcg gcc gct  tcc cga aag ccc gat  ccc gcc gtc gcg ccc    104119
Pro Thr Ser Ala Ala  Ser Arg Lys Pro Asp  Pro Ala Val Ala Pro
            9365              9370                9375


acc tcg gcc gct acc  cga aag ccc gat ccc  gcc gtc gcg ccc acc    104164
Thr Ser Ala Ala Thr  Arg Lys Pro Asp Pro  Ala Val Ala Pro Thr
            9380              9385                9390


tcg gcc gct tcc cga  aag ccc gat ccc gca  gcc aac acc caa cat    104209
Ser Ala Ala Ser Arg  Lys Pro Asp Pro Ala  Ala Asn Thr Gln His
            9395              9400                9405


tca caa cca cct ttt  cta tat gaa aat ata  caa tgc gtt cac ggc    104254
Ser Gln Pro Pro Phe  Leu Tyr Glu Asn Ile  Gln Cys Val His Gly
            9410              9415                9420


gga ata caa tcc ata  ccc tat ttt cac aca  ttt atc atg cct tgt    104299
Gly Ile Gln Ser Ile  Pro Tyr Phe His Thr  Phe Ile Met Pro Cys
            9425              9430                9435
```

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tac atg cgt cta acg  acc gga caa cag gcg  gcc ttt aag cag caa    104344
Tyr Met Arg Leu Thr  Thr Gly Gln Gln Ala  Ala Phe Lys Gln Gln
            9440              9445              9450

caa aaa aca tat gaa  caa tat tct tta gat  ccg gaa ggt tca aat    104389
Gln Lys Thr Tyr Glu  Gln Tyr Ser Leu Asp  Pro Glu Gly Ser Asn
            9455              9460              9465

ata aca agg tgg aag  tcg ctt ata cgc ccc  gat ctt cat att gaa    104434
Ile Thr Arg Trp Lys  Ser Leu Ile Arg Pro  Asp Leu His Ile Glu
            9470              9475              9480

gtt tgg ttt acg cgt  cac ctt ata gat ccg  cac cgt caa ctg ggc    104479
Val Trp Phe Thr Arg  His Leu Ile Asp Pro  His Arg Gln Leu Gly
            9485              9490              9495

aat gcg tta ata cgc  atg cca gat tta ccg  gtt atg tta tat agc    104524
Asn Ala Leu Ile Arg  Met Pro Asp Leu Pro  Val Met Leu Tyr Ser
            9500              9505              9510

aac agt gcc gat tta  aac tta ata aac aac  cct gag ata ttt aca    104569
Asn Ser Ala Asp Leu  Asn Leu Ile Asn Asn  Pro Glu Ile Phe Thr
            9515              9520              9525

cac gct aag gaa aat  tat gta ata cca gat  gtt aaa aca acg tct    104614
His Ala Lys Glu Asn  Tyr Val Ile Pro Asp  Val Lys Thr Thr Ser
            9530              9535              9540

gat ttt tct gta aca  att tta tct atg gat  gct acc acg gag gga    104659
Asp Phe Ser Val Thr  Ile Leu Ser Met Asp  Ala Thr Thr Glu Gly
            9545              9550              9555

acg tat att tgg cga  gtc gtt aat aca aaa  act aag aac gtc ata    104704
Thr Tyr Ile Trp Arg  Val Val Asn Thr Lys  Thr Lys Asn Val Ile
            9560              9565              9570

tcg gaa cac agt att  aca gtt aca acg tat  tat cgt cca aat att    104749
Ser Glu His Ser Ile  Thr Val Thr Thr Tyr  Tyr Arg Pro Asn Ile
            9575              9580              9585

acc gtt gtc ggc gat  cca gtc tta acc gga  cag aca tac gca gcc    104794
Thr Val Val Gly Asp  Pro Val Leu Thr Gly  Gln Thr Tyr Ala Ala
            9590              9595              9600

tac tgt aac gta tca  aag tat tat cca ccg  cac tcg gta cgt gtt    104839
Tyr Cys Asn Val Ser  Lys Tyr Tyr Pro Pro  His Ser Val Arg Val
            9605              9610              9615

cgg tgg act tca agg  ttt ggt aac atc gga  aaa aat ttt ata acc    104884
Arg Trp Thr Ser Arg  Phe Gly Asn Ile Gly  Lys Asn Phe Ile Thr
            9620              9625              9630

gat gca ata caa gaa  tat gcc aat gga tta  ttt agt tat gtt tcg    104929
Asp Ala Ile Gln Glu  Tyr Ala Asn Gly Leu  Phe Ser Tyr Val Ser
            9635              9640              9645
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gcg gta cga att cca   cag caa aaa caa atg   gat tac cca ccc cca        104974
Ala Val Arg Ile Pro   Gln Gln Lys Gln Met   Asp Tyr Pro Pro Pro
                9650                  9655                  9660

gcc atc caa tgt aat   gtt tta tgg att cgg   gat ggc gtc tct aat        105019
Ala Ile Gln Cys Asn   Val Leu Trp Ile Arg   Asp Gly Val Ser Asn
                9665                  9670                  9675

atg aaa tat tct gct   gtc gtt acc cct gac   gtc tat cca ttt ccc        105064
Met Lys Tyr Ser Ala   Val Val Thr Pro Asp   Val Tyr Pro Phe Pro
                9680                  9685                  9690

aac gtg tct ata ggt   att att gat gga cac   ata gta tgt acg gca        105109
Asn Val Ser Ile Gly   Ile Ile Asp Gly His   Ile Val Cys Thr Ala
                9695                  9700                  9705

aaa tgt gtg cca cgt   ggc gtt gta cat ttc   gta tgg tgg gtt aac        105154
Lys Cys Val Pro Arg   Gly Val Val His Phe   Val Trp Trp Val Asn
                9710                  9715                  9720

gat tct ccc att aac   cac gaa aac agt gag   att act ggg gtg tgt        105199
Asp Ser Pro Ile Asn   His Glu Asn Ser Glu   Ile Thr Gly Val Cys
                9725                  9730                  9735

gat caa aac aaa cgg   ttt gta aac atg caa   agt tct tgt cca aca        105244
Asp Gln Asn Lys Arg   Phe Val Asn Met Gln   Ser Ser Cys Pro Thr
                9740                  9745                  9750

tcg gaa ctc gac gga   cct atc acc tat tcg   tgt cat cta gat ggt        105289
Ser Glu Leu Asp Gly   Pro Ile Thr Tyr Ser   Cys His Leu Asp Gly
                9755                  9760                  9765

tac cct aaa aaa ttc   cct ccg ttt tcg gcc   gtt tat acc tac gat        105334
Tyr Pro Lys Lys Phe   Pro Pro Phe Ser Ala   Val Tyr Thr Tyr Asp
                9770                  9775                  9780

gca tct acc tac gcc   act aca ttt tcc gtt   gta gca gtt ata att        105379
Ala Ser Thr Tyr Ala   Thr Thr Phe Ser Val   Val Ala Val Ile Ile
                9785                  9790                  9795

ggt gtg ata tct atc   ctt ggg aca ttg ggt   ctt atc gca gtt atc        105424
Gly Val Ile Ser Ile   Leu Gly Thr Leu Gly   Leu Ile Ala Val Ile
                9800                  9805                  9810

gca acc cta tgc atc   cgt tgc tgt tca taa acagaaacca accaaacgcg        105474
Ala Thr Leu Cys Ile   Arg Cys Cys Ser
                9815


tctgtgtata tcattttatt acattcgcaa cacatctact gtcttgacaa catttaaaaa 105534

tccattaaag agccatttcc atttttaggg gggggtgtgg attatatcca tcaagctgaa 105594

aatcgtccca tttaaagtcg tttatatctg ttacatttcg aataatttta aggcaaggaa 105654

aaggttttgg ggatcgagct agctgcactt ttaaagcatc tatatgattc aagtaaatat 105714

gtgcatcccc cattgtatga attaaatctc cggttttaag tcctgtaaca tgcgctacta 105774
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tgtaggtaag aagtgcatat ccagcaatgt tgaacggtac cccaaggccc atatcccccg 105834

atctctggta tacttggcag gataattcac cgtttgcaac gtaaaactga cataacgtgt 105894

gacatggagg tagtaccatt aagggggatat cctttggatt ccaagacgat ataatcattc 105954

gtcggctttc tgggtttgtt ttaattgtat ctataacagt ttgcagctga tcgattcctt 106014

gctgtaaata gtttgattga cagtctttat attccgctcc aaaatgtctc cactggaagc 106074

cgtaaatggg gccaaggtcc cccgtgtgtc ttttatggaa gccattccta tttagaaatt 106134

tgctcgatcc gtatatatcc catatgtgta tatctttagc ggcgagttct ttggaatcgg 106194

ttgacccgcg gataaaccat aacaactctt ccacgacggc cctccaaaaa acacgctttg 106254

tagttaaaag aggaaattca tttcgcaaat tgtatcgagc ttgcattcca aataaagata 106314

acgttccgat tcctgttcga tcgcgtttcc gaactccata ccttaaaata tcatccactt 106374

gttttaagta ctgaagttcg ccggttaacg taaaacccgg cacctttgtc caacatgaca 106434

agtctcccat ggtaccggta ataatcgtta aatacaaacg accacttgat attgtgggta 106494

cattaagtaa aatttaaagg agtaattcct tttataaccc aatcaaccaa tcagaccttt 106554

aaataacgca gtccaattat tgaacagaaa atacgcaata gactattttc tcccaaatcc 106614

cccaatttta acctggttgt ggaaatgacc gccaaagtgc ctagtccata actatctatt 106674

aaccgctgta cttaatgatg actcttaggc gtatttttcc taaacgtaac cgtggtttta 106734

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acttccttgg gtggtatatt ttcatatacg tgatcattta aagatgcttg ggtttctatg 106914

tgacgtaaat ccgatctttg gtcaaacatt gtgtttgatt catcccgaac cggaccttca 106974

tattccgcct ttatccgggt gtaatgatca ggatacgttg ggtcaactgg actaccgtcc 107034

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gcttctgtat taattacatg cgaacttgca tttacgtcgt cagataaata atttcccgtt 107214

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cgaatatacg gctgatcaga cacactcgat ggttcggata tacgtcttaa atgtaacgga 107334

gtataccgtt tactggcggc aagaacctga gcataatact ttgtgggttt accccatgt 107394

gctaaaatac tctgcgccac ggcccgggaa aaccacatat gggtgctggt ctctaacaca 107454
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acccaactgt gtgttgacat tgttctgacc aactgacccg caaaatataa aaaccgtccc 107514

tgggcacgta gcgcctttaa tatataagga tcgtttaatc ccccatcccc ccaacatgca 107574

tatccaataa gcatcatatt aattaagtat tgaaaatggt ggtgcaaaag cgtaataagt 107634

tcaaccgccg caacaattgc agctgcggtt ccatttaaac catcccgcca ctcttccttt 107694

cgccataata cactaatacg caaaagcgca gtaagagcgc tggcagttgt tgctgctaaa 107754

ataaacgcaa ctcctgtgcc cgctgagacc gcaggacccg tttttaaatg tcgtctaagc 107814

aaatcatctg gaataacaga cgcgcgcggc cctcgaatcc gtcgaaattg aagtttgaga 107874

tggcgacata ccctggcgtc cacaacgtcc aagaaccata acatccaccc gtagccagta 107934

gccgtgtaag ccgcaatttc ttgtacacgt attcttgtat ccgggctggg gtttgtagga 107994

tcatctggac gcataaaata catatacttt tgcacagctc ctaacgcctc acgtagctcc 108054

tgacatattc cccggtaatc cgaatttata actttagatt taaaaggatg tctggatatt 108114

ggtttattgg caactacgga tgaaaacaac aaaaccgtgg atttagactt tttatttacc 108174

ttctctgaag tcaccggtac ctcggctcct gtggtgtatt tgagatactg ccaatatgta 108234

ttttcataaa cccaccaaag tccatcccca gaaagtttca ggtcatccaa acatctttga 108294

attgtttcca tataacgctg cataaacccg tcatgaacat cgttagacat acacgagacc 108354

accaacgatt caggaacatt attatggtgt aatccaagca gaacactgtg tctttcggta 108414

ctttgtaaaa ccggcgatgt taggctgtcg gtcttttcag ataaagcctt taccgccgtc 108474

tccaaagcct cgccgggcgt tggaataaga catccatccc tcacgcgctc gctggttatg 108534

cgttgggaaa tagaacacca gtcccgggta ggtgtgggca aatcacgttc gccggcatta 108594

aaactttggt aactaccatc ataagattta cgcgttctat catcgctgga aaaggaacgc 108654

gcaaaccgag aaaacattgc gatatggaca aattatatct tgtaaaggtc gatcctcacg 108714

gacccccccac acaacacaca caacaaattt taaggtctaa acagagattt tattttacaa 108774

actcctttgt gggtgtggct aggaaacgtt cttttcatcc taatgaaaaa aatcacaacc 108834

cttaatattt tcgtagtaaa tgcatggcta cgcttttcca atccaaaccc agaatttcat 108894

tcctgtattg cataagattt tcggctaggt ccacggaggg aatgggctgt tctcggggat 108954

agatggtctc caatcccaca aaacggaagt tcatctctat aggtgatgcc tgaactatcc 109014

tgtcttgctc tttgggtaaa acgtccgttg tcggtcgaat ccccaaagtt tgcattgcat 109074

catcgcggtc tttccaaaag gatgttaaag tttggtgagc gtaaagagga cttgctgcca 109134

acattaaagt attatatgca tctaaaatac ctcgggggat gtaaattgaa catcctccgt 109194
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366

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368

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tgctacatca ccaaacaacg attcatcaaa tgcgtccaca accgcttgtt ccgttttact 112674

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aactccacga gccgaacagc tggcatgcca aaaattccgt tctgcaaagt ttggctcccc 114174

actgctgtct tcacaaaaaa ataaaatttg catcgttatt aat atg  aac gaa gcg 114229
                                               Met  Asn Glu Ala
                                               9820
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gta att  gat ccc atc ttg gaa  acg gca gta aat aca  ggt gat atg     114274
Val Ile  Asp Pro Ile Leu Glu  Thr Ala Val Asn Thr  Gly Asp Met
    9825             9830                 9835

ttt tgt  agc caa act att ccg  aat cgg tgt tta aaa  gat aca att     114319
Phe Cys  Ser Gln Thr Ile Pro  Asn Arg Cys Leu Lys  Asp Thr Ile
    9840             9845                 9850

tta ata  gaa gtt caa cct gaa  tgt gca gat acg ctg  caa tgc gtg     114364
Leu Ile  Glu Val Gln Pro Glu  Cys Ala Asp Thr Leu  Gln Cys Val
    9855             9860                 9865

tta gac  gat aaa gta agt cga  cat caa ccg ttg tta  ctc cgg aac     114409
Leu Asp  Asp Lys Val Ser Arg  His Gln Pro Leu Leu  Leu Arg Asn
    9870             9875                 9880

cac aag  aaa ctc gaa ctg cca  tct gaa aaa tct gta  aca cgg ggc     114454
His Lys  Lys Leu Glu Leu Pro  Ser Glu Lys Ser Val  Thr Arg Gly
    9885             9890                 9895

ggt ttt  tat atg cag cag ttg  gag ctg ttg gtt aag  tcg gcg cct     114499
Gly Phe  Tyr Met Gln Gln Leu  Glu Leu Leu Val Lys  Ser Ala Pro
    9900             9905                 9910

ccc aat  gaa tac gca ctg ttg  tta att caa tgc aaa  gat act gcc     114544
Pro Asn  Glu Tyr Ala Leu Leu  Leu Ile Gln Cys Lys  Asp Thr Ala
    9915             9920                 9925

ctt gct  gat gaa gac aat ttt  ttt gtc gcc aac gga  gtt att gat     114589
Leu Ala  Asp Glu Asp Asn Phe  Phe Val Ala Asn Gly  Val Ile Asp
    9930             9935                 9940

gcg ggt  tac aga gga gta att  tca gcc ctt ttg tat  tac cgg cca     114634
Ala Gly  Tyr Arg Gly Val Ile  Ser Ala Leu Leu Tyr  Tyr Arg Pro
    9945             9950                 9955

gga gta  acc gtt att tta ccc  gga cat tta aca atc  tac ttg ttc     114679
Gly Val  Thr Val Ile Leu Pro  Gly His Leu Thr Ile  Tyr Leu Phe
    9960             9965                 9970

ccg gta  aaa tta aga caa agt  cgc ctt ctc cca aaa  aac gtt ctt     114724
Pro Val  Lys Leu Arg Gln Ser  Arg Leu Leu Pro Lys  Asn Val Leu
    9975             9980                 9985

aaa cat  ctg gat cca att ttt  aaa tcg ata caa gtt  caa ccc tta     114769
Lys His  Leu Asp Pro Ile Phe  Lys Ser Ile Gln Val  Gln Pro Leu
    9990             9995                 10000

tca aac  tcg ccg tca aat tat  gaa aaa ccc gtt ata  cct gaa ttt    114814
Ser Asn  Ser Pro Ser Asn Tyr  Glu Lys Pro Val Ile  Pro Glu Phe
    10005            10010                10015

gct gat  att tcc acg gta cag  cag ggg caa cct tta  cat agg gat    114859
Ala Asp  Ile Ser Thr Val Gln  Gln Gly Gln Pro Leu  His Arg Asp
    10020            10025                10030

tct gca  gaa tac cat atc gat  gtt ccc tta acc tac  aaa cat atc    114904
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Ser Ala   Glu Tyr His Ile Asp   Val Pro Leu Thr Tyr   Lys His Ile
    10035                 10040                 10045

atc aat   cca aaa cgc caa gaa   gac gcg gga tat gat   att tgt gta 114949
Ile Asn   Pro Lys Arg Gln Glu   Asp Ala Gly Tyr Asp   Ile Cys Val
    10050                 10055                 10060

cca tat   aac cta tat tta aaa   agg aat gaa ttt ata   aaa att gtc 114994
Pro Tyr   Asn Leu Tyr Leu Lys   Arg Asn Glu Phe Ile   Lys Ile Val
    10065                 10070                 10075

tta ccg   att ata aga gac tgg   gac tta caa cat ccg   agt ata aac 115039
Leu Pro   Ile Ile Arg Asp Trp   Asp Leu Gln His Pro   Ser Ile Asn
    10080                 10085                 10090

gct tat   att ttt gga aga tca   tcg aaa agc cga tca   ggc att atc 115084
Ala Tyr   Ile Phe Gly Arg Ser   Ser Lys Ser Arg Ser   Gly Ile Ile
    10095                 10100                 10105

gtg tgt   cca acg gca tgg cct   gca gga gaa cac tgt   aaa ttc tac 115129
Val Cys   Pro Thr Ala Trp Pro   Ala Gly Glu His Cys   Lys Phe Tyr
    10110                 10115                 10120

gta tat   aat ctc acg ggt gat   gac ata cgt ata aaa   acg gga gat 115174
Val Tyr   Asn Leu Thr Gly Asp   Asp Ile Arg Ile Lys   Thr Gly Asp
    10125                 10130                 10135

cgt ctt   gca cag gtc ctg tta   ata gat cac aac acc   caa ata cac 115219
Arg Leu   Ala Gln Val Leu Leu   Ile Asp His Asn Thr   Gln Ile His
    10140                 10145                 10150

tta aaa   cac aac gtt tta agt   aat att gca ttt cct   tat gct atc 115264
Leu Lys   His Asn Val Leu Ser   Asn Ile Ala Phe Pro   Tyr Ala Ile
    10155                 10160                 10165

cgc ggt   aaa tgt ggc ata ccg   ggt gta caa tgg tat   ttt act aaa 115309
Arg Gly   Lys Cys Gly Ile Pro   Gly Val Gln Trp Tyr   Phe Thr Lys
    10170                 10175                 10180

acg tta   gat cta ata gcc aca   ccc agc gaa cgg gga   acg cgt gga 115354
Thr Leu   Asp Leu Ile Ala Thr   Pro Ser Glu Arg Gly   Thr Arg Gly
    10185                 10190                 10195

ttt ggt   tca act gat aaa gaa   aca aac gat gtc gat   ttt cta cta 115399
Phe Gly   Ser Thr Asp Lys Glu   Thr Asn Asp Val Asp   Phe Leu Leu
    10200                 10205                 10210

aaa cat   taa atgtaataac cacgccagcc agcaatgttt taattttata     115448
Lys His
    10215


tacaaaataa aaacatacac cagaaacgtt tttagttttt atttcaatat ttatacaagc 115508

ataacatggg atttcttgat cgcgggggtt gtgcgttgta catcttgcgt ctgttttggg 115568

gtcaacacgg gctgaagagt ttctgtcgga tacgtttttt ttgttaggtt agatgtgtta 115628
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ttatccgata cttctataag tgggggttta atttcagata attgtgtcgc ctccgattta 115688

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gaaacatcaa acgatgcctg aggtttagca acgaccccaa gagttttctc caaaagaaca 115808

acatcagaca tgaccacttc actttcagcg gtcattctca gggtttgatc gacaatatca 115868

tccgtagtaa catccaccgc gccaaccgat aaatacaaat gggtaattgc agctaaacac 115928

atatcagcaa gccgttttga gttttccatg tgtgaacgga ccacggcgtt aagaccgggg 115988

ttatcttcag taaaatggtg ctgttttaaa cattcaatgt tacgagaaca tgcagcgtaa 116048

gttcgcgcca aagcctgggc gcggaccaaa cgacgggtat tatctgcaga agcgactacg 116108

tcttctaacg ttagaggtgc aggcaataat ccattcacag cggttaaagc ctcttggagg 116168

cggagcaggg cggctccttg ggggtgcgtg tttacacgca cctcttcata agatggctct 116228

tcagttggta ttcgagcata tccacataag ctggcacaca ccgtctgcat gattgactgg 116288

ctttccaacg tattgaact atg gat aaa tcc tcc    aaa ccg acg att cgg      116337
                      Met Asp Lys Ser Ser    Lys Pro Thr Ile Arg
                                        10220                  10225

tta tta ttt gcc aca    aag gga tgt gca atc    tcc cac tcg ctg ttg    116382
Leu Leu Phe Ala Thr    Lys Gly Cys Ala Ile    Ser His Ser Leu Leu
                10230                  10235                  10240

ttg ctt acc ggg cag    ata agc aca gaa cct    ctg tat gtg gtg agt    116427
Leu Leu Thr Gly Gln    Ile Ser Thr Glu Pro    Leu Tyr Val Val Ser
                10245                  10250                  10255

tat act tgg act ccc    gac tta gat gac gtc    ttt gtc aaa aat ggg    116472
Tyr Thr Trp Thr Pro    Asp Leu Asp Asp Val    Phe Val Lys Asn Gly
                10260                  10265                  10270

agg gaa gag atc acg    caa gta atc cca act    aaa cgc cca cgt gaa    116517
Arg Glu Glu Ile Thr    Gln Val Ile Pro Thr    Lys Arg Pro Arg Glu
                10275                  10280                  10285

gta act gaa aac gat    gaa gaa aac caa ata    atg cat tta ttt tgt    116562
Val Thr Glu Asn Asp    Glu Glu Asn Gln Ile    Met His Leu Phe Cys
                10290                  10295                  10300

agt agg gac gtc aac    gtt att ttt tat tta    att ggt gga ttt tca    116607
Ser Arg Asp Val Asn    Val Ile Phe Tyr Leu    Ile Gly Gly Phe Ser
                10305                  10310                  10315

act gga gat gta cga    tcc cgg gtc tgg cct    ata ttt ttt tgt tgt    116652
Thr Gly Asp Val Arg    Ser Arg Val Trp Pro    Ile Phe Phe Cys Cys
                10320                  10325                  10330

ttt aaa acc caa act    gat ttt aaa gct tta    tat aag gcg tta tgg    116697
Phe Lys Thr Gln Thr    Asp Phe Lys Ala Leu    Tyr Lys Ala Leu Trp
                10335                  10340                  10345
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tat gga gca ccc cta    aat ccg cat ata ata    tct gat acc cta tgt    116742
Tyr Gly Ala Pro Leu    Asn Pro His Ile Ile    Ser Asp Thr Leu Cys
                10350                  10355                  10360

ata tcg gag acg ttt    gac att cac tcg gaa    gtt ata caa act ctg    116787
Ile Ser Glu Thr Phe    Asp Ile His Ser Glu    Val Ile Gln Thr Leu
                10365                  10370                  10375

atg gta aca aca cac    cat tta aac cga aag    gga tta tcg gac aac    116832
Met Val Thr Thr His    His Leu Asn Arg Lys    Gly Leu Ser Asp Asn
                10380                  10385                  10390

ggc cta tgc atc aca    gag gca aca ctc tgc    aag tta gtt aaa aaa    116877
Gly Leu Cys Ile Thr    Glu Ala Thr Leu Cys    Lys Leu Val Lys Lys
                10395                  10400                  10405

tcc gtt ggt cgt cag    gag cta aca tca tta    tat gcc cat tac gaa    116922
Ser Val Gly Arg Gln    Glu Leu Thr Ser Leu    Tyr Ala His Tyr Glu
                10410                  10415                  10420

cgt caa gta ttg gct    gca tat cga cga ctc    tac tgg ggg tat gga    116967
Arg Gln Val Leu Ala    Ala Tyr Arg Arg Leu    Tyr Trp Gly Tyr Gly
                10425                  10430                  10435

tgc tcg ccg ttt tgg    tat att gtt cga ttt    gga ccc tct gaa aaa    117012
Cys Ser Pro Phe Trp    Tyr Ile Val Arg Phe    Gly Pro Ser Glu Lys
                10440                  10445                  10450

acg cta gtg ttg gct    aca cgc tat tac ttg    tta caa acg gac aca    117057
Thr Leu Val Leu Ala    Thr Arg Tyr Tyr Leu    Leu Gln Thr Asp Thr
                10455                  10460                  10465

agt tac aat acg ttg    gaa acc ccc tta tat    gac tta cag gca att    117102
Ser Tyr Asn Thr Leu    Glu Thr Pro Leu Tyr    Asp Leu Gln Ala Ile
                10470                  10475                  10480

aaa gat ttg ttt tta    act tac caa gtc ccg    gca tta cct aat tgt    117147
Lys Asp Leu Phe Leu    Thr Tyr Gln Val Pro    Ala Leu Pro Asn Cys
                10485                  10490                  10495

agt ggg tac aat att    tcg gac ttg ttg tct    ttt gat aaa ctt tcc    117192
Ser Gly Tyr Asn Ile    Ser Asp Leu Leu Ser    Phe Asp Lys Leu Ser
                10500                  10505                  10510

atg ttt tgt tgt tcc    tca aca tat aca cga    ggt ttg aca gcc aaa    117237
Met Phe Cys Cys Ser    Ser Thr Tyr Thr Arg    Gly Leu Thr Ala Lys
                10515                  10520                  10525

aat gct cta tcg tac    att tta cag cga ata    cat aca gac aca acg    117282
Asn Ala Leu Ser Tyr    Ile Leu Gln Arg Ile    His Thr Asp Thr Thr
                10530                  10535                  10540

gaa ata cac gca gta    tcg gag tat att acc    aac gat aga aaa ggc    117327
Glu Ile His Ala Val    Ser Glu Tyr Ile Thr    Asn Asp Arg Lys Gly
                10545                  10550                  10555
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ctt aaa gtt cca gac    cgt gaa ttt gtt gat    tat att tat ctg gca    117372
Leu Lys Val Pro Asp    Arg Glu Phe Val Asp    Tyr Ile Tyr Leu Ala
            10560                  10565                  10570

cat ttt gaa tgt ttc    aat cgg aaa cag atc    gca gac cac cta caa    117417
His Phe Glu Cys Phe    Asn Arg Lys Gln Ile    Ala Asp His Leu Gln
            10575                  10580                  10585

gcg gtt aca tac tca    gat ttt gtg aat aaa    ccg gtc ctc tta aaa    117462
Ala Val Thr Tyr Ser    Asp Phe Val Asn Lys    Pro Val Leu Leu Lys
            10590                  10595                  10600

tca tcc aac ctg gga    aaa aga gct act gct    aat ttt ttt aat cat    117507
Ser Ser Asn Leu Gly    Lys Arg Ala Thr Ala    Asn Phe Phe Asn His
            10605                  10610                  10615

gta cgt tct cgt ctc    aac atg cgt gac tat    ata aaa aag aac gta    117552
Val Arg Ser Arg Leu    Asn Met Arg Asp Tyr    Ile Lys Lys Asn Val
            10620                  10625                  10630

att tgt gat gtc act    gaa ctt gga cct gag    att gga cat aaa tat    117597
Ile Cys Asp Val Thr    Glu Leu Gly Pro Glu    Ile Gly His Lys Tyr
            10635                  10640                  10645

aca att act aaa aca    tat act tta agt ctt    acg tat gcc gca aaa    117642
Thr Ile Thr Lys Thr    Tyr Thr Leu Ser Leu    Thr Tyr Ala Ala Lys
            10650                  10655                  10660

cct agc aag ttt ata    ggc gta tgt gac cta    gct aca acg cta act    117687
Pro Ser Lys Phe Ile    Gly Val Cys Asp Leu    Ala Thr Thr Leu Thr
            10665                  10670                  10675

cgt cgt gtg gaa aac    att gaa aaa caa ttt    agt cca tat gga tgg    117732
Arg Arg Val Glu Asn    Ile Glu Lys Gln Phe    Ser Pro Tyr Gly Trp
            10680                  10685                  10690

tcc tcc act att ccc    tca aat cca ccc ggt    ttt gac gaa ttg tct    117777
Ser Ser Thr Ile Pro    Ser Asn Pro Pro Gly    Phe Asp Glu Leu Ser
            10695                  10700                  10705

aat ttt gag gat tcg    ggt gtt tcc gcg gag    gcg tta cga gca gcc    117822
Asn Phe Glu Asp Ser    Gly Val Ser Ala Glu    Ala Leu Arg Ala Ala
            10710                  10715                  10720

aac ttt gca aac gat    aca cct aac caa agt    ggt cgt act ggt ttt    117867
Asn Phe Ala Asn Asp    Thr Pro Asn Gln Ser    Gly Arg Thr Gly Phe
            10725                  10730                  10735

gat acg agc ccg ggg    att aca aaa cta tta    ctg ttt ttc tct gct    117912
Asp Thr Ser Pro Gly    Ile Thr Lys Leu Leu    Leu Phe Phe Ser Ala
            10740                  10745                  10750

gcc act ggg ata gcc    aca cat gat gta tcc    atc ctg agt tat aaa    117957
Ala Thr Gly Ile Ala    Thr His Asp Val Ser    Ile Leu Ser Tyr Lys
            10755                  10760                  10765

act cca tta gaa gcc    ctc atc ggc cat tct    gag gta act gga cca    118002
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Thr Pro Leu Glu Ala    Leu Ile Gly His Ser    Glu Val Thr Gly Pro
            10770                   10775                   10780

atg cct gta tat cgg    gta gcc ttg cct cac    ggc gcc caa gca ttt    118047
Met Pro Val Tyr Arg    Val Ala Leu Pro His    Gly Ala Gln Ala Phe
            10785                   10790                   10795

gct gtt att gct aat    gat acg tgg tca tca    ata aca aac cgt tac    118092
Ala Val Ile Ala Asn    Asp Thr Trp Ser Ser    Ile Thr Asn Arg Tyr
            10800                   10805                   10810

act tta ccg cac gag    gct cga tta att gcg    gag gac ctt aaa caa    118137
Thr Leu Pro His Glu    Ala Arg Leu Ile Ala    Glu Asp Leu Lys Gln
            10815                   10820                   10825

att aat cca tgt aat    ttt gtt gcc gct tca    cta cga gat atg cag    118182
Ile Asn Pro Cys Asn    Phe Val Ala Ala Ser    Leu Arg Asp Met Gln
            10830                   10835                   10840

ttg act tta cta tta    tct acg tct gtt aaa    aac gtt tct aaa att    118227
Leu Thr Leu Leu Leu    Ser Thr Ser Val Lys    Asn Val Ser Lys Ile
            10845                   10850                   10855

tca tca aac ata ccc    aaa gat cag ctt tat    ata aac agg aat gag    118272
Ser Ser Asn Ile Pro    Lys Asp Gln Leu Tyr    Ile Asn Arg Asn Glu
            10860                   10865                   10870

cta ttt aat aca aat    ctt ata atc aca aac    ctc ata ctt gat gta    118317
Leu Phe Asn Thr Asn    Leu Ile Ile Thr Asn    Leu Ile Leu Asp Val
            10875                   10880                   10885

gac ttt cat ata aga    aaa ccc atc cca ttg    ggt att tta cat gcc    118362
Asp Phe His Ile Arg    Lys Pro Ile Pro Leu    Gly Ile Leu His Ala
            10890                   10895                   10900

ggc atg cga gca ttt    cgt cat ggt att tta    acg gcc atg caa tta    118407
Gly Met Arg Ala Phe    Arg His Gly Ile Leu    Thr Ala Met Gln Leu
            10905                   10910                   10915

ctt ttt cca aag gcc    gtg gta aac cct aac    aaa gac cca tgt tat    118452
Leu Phe Pro Lys Ala    Val Val Asn Pro Asn    Lys Asp Pro Cys Tyr
            10920                   10925                   10930

ttt tat aaa act gca    tgt cct gaa cct acc    gtt gag gtg ttg gat    118497
Phe Tyr Lys Thr Ala    Cys Pro Glu Pro Thr    Val Glu Val Leu Asp
            10935                   10940                   10945

gat gat aat tta ttg    gat ata acc agc cat    tct gac atc gat ttt    118542
Asp Asp Asn Leu Leu    Asp Ile Thr Ser His    Ser Asp Ile Asp Phe
            10950                   10955                   10960

tac ata gaa aat ggc    gaa tta tac acg tgt    gta gaa gag aat tat    118587
Tyr Ile Glu Asn Gly    Glu Leu Tyr Thr Cys    Val Glu Glu Asn Tyr
            10965                   10970                   10975

aca gag gat gta tgg    ttt ttt gat aca cag    aca acg tct gaa gtc    118632
Thr Glu Asp Val Trp    Phe Phe Asp Thr Gln    Thr Thr Ser Glu Val
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cat aca cac gcc gat   gta tca aac aat gaa   aac ttg cat gaa act   118677
His Thr His Ala Asp   Val Ser Asn Asn Glu   Asn Leu His Glu Thr
            10995   11000   11005

cta ccc tgt aac tgt   aaa gag aaa ata ggt   ttc agg gta tgc gta   118722
Leu Pro Cys Asn Cys   Lys Glu Lys Ile Gly   Phe Arg Val Cys Val
            11010   11015   11020

cca atc cca aat ccc   tat gcg tta gtg ggg   tct tcc act tta aag   118767
Pro Ile Pro Asn Pro   Tyr Ala Leu Val Gly   Ser Ser Thr Leu Lys
            11025   11030   11035

ggg ttt gca caa ata   tta cag caa gcg gtg   ttg ctg gaa cgg gaa   118812
Gly Phe Ala Gln Ile   Leu Gln Gln Ala Val   Leu Leu Glu Arg Glu
            11040   11045   11050

ttt gtt gaa tat att   ggt ccg tat tta cgg   gac ttt tcg ttt ata   118857
Phe Val Glu Tyr Ile   Gly Pro Tyr Leu Arg   Asp Phe Ser Phe Ile
            11055   11060   11065

gat act ggt gtt tat   agc cac gga cat agt   tta aga ctg cct ttt   118902
Asp Thr Gly Val Tyr   Ser His Gly His Ser   Leu Arg Leu Pro Phe
            11070   11075   11080

ttc tcc aaa gta aca   acc aca ggg acg gcg   gtt gga caa cta ctc   118947
Phe Ser Lys Val Thr   Thr Thr Gly Thr Ala   Val Gly Gln Leu Leu
            11085   11090   11095

cca ttt tat gtt gta   cct gag cag tgt att   gat ata tta gcg ttt   118992
Pro Phe Tyr Val Val   Pro Glu Gln Cys Ile   Asp Ile Leu Ala Phe
            11100   11105   11110

gtg aca tca cat aga   aac ccg gca aac ttt   cat ttt cat tca aga   119037
Val Thr Ser His Arg   Asn Pro Ala Asn Phe   His Phe His Ser Arg
            11115   11120   11125

ccg cag tcg aat gtt   cca gtg caa ttt att   tta cat aac ctt ggg   119082
Pro Gln Ser Asn Val   Pro Val Gln Phe Ile   Leu His Asn Leu Gly
            11130   11135   11140

ggg gaa tac gca gag   ttt ttt gaa cgt aag   gtt gcg cgt aat aaa   119127
Gly Glu Tyr Ala Glu   Phe Phe Glu Arg Lys   Val Ala Arg Asn Lys
            11145   11150   11155

caa ata ttt agc tcc   ccg caa ata tct tta   aca aag gct cta aaa   119172
Gln Ile Phe Ser Ser   Pro Gln Ile Ser Leu   Thr Lys Ala Leu Lys
            11160   11165   11170

gag cgc ggg gta act   tgt ctg gac gca ttt   aca ctg gag gcc ttt   119217
Glu Arg Gly Val Thr   Cys Leu Asp Ala Phe   Thr Leu Glu Ala Phe
            11175   11180   11185

gtc gac agc aca ata   tta gaa tct att gtg   gag cat att gct gtt   119262
Val Asp Ser Thr Ile   Leu Glu Ser Ile Val   Glu His Ile Ala Val
            11190   11195   11200

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cat ttc ccc ggg cgt    gat cgc gaa tat acc    tta aca tca tca aag    119307
His Phe Pro Gly Arg    Asp Arg Glu Tyr Thr    Leu Thr Ser Ser Lys
                11205                  11210                  11215

tgt atc gcc atc aaa    agg gac tgg gtg tta    ttt cag ctc ata tgc    119352
Cys Ile Ala Ile Lys    Arg Asp Trp Val Leu    Phe Gln Leu Ile Cys
                11220                  11225                  11230

gga aca aaa ggg ttc    act tgt ctt cga tat    ccc cat cgc gga gga    119397
Gly Thr Lys Gly Phe    Thr Cys Leu Arg Tyr    Pro His Arg Gly Gly
                11235                  11240                  11245

aga acg gct ccc cgg    aca ttt gtg tct ctg    cga gtg gat cat cac    119442
Arg Thr Ala Pro Arg    Thr Phe Val Ser Leu    Arg Val Asp His His
                11250                  11255                  11260

aac cgt ttg tgt att    tcg ctt gca caa caa    tgt ttt gct aca aag    119487
Asn Arg Leu Cys Ile    Ser Leu Ala Gln Gln    Cys Phe Ala Thr Lys
                11265                  11270                  11275

tgc gat agc aat cgc    atg cat aca atc ttt    act cta gaa gta cct    119532
Cys Asp Ser Asn Arg    Met His Thr Ile Phe    Thr Leu Glu Val Pro
                11280                  11285                  11290

aat tat cca aat tta    act tcg agt taa caccaaccgt gtgatactac          119579
Asn Tyr Pro Asn Leu    Thr Ser Ser
                11295

atcgtgcttg aattgccatc ttccacgggt c atg cag    gct tta gga atc        119628
                                  Met Gln    Ala Leu Gly Ile
                                      11300

aag    aca gaa cat ttt ata    att atg tgt cta ctt    agc gga cat gct 119673
Lys    Thr Glu His Phe Ile    Ile Met Cys Leu Leu    Ser Gly His Ala
11305                  11310                  11315

gtt    ttt acc cta tgg tat    acc gct cgt gta aag    ttt gaa cat gag 119718
Val    Phe Thr Leu Trp Tyr    Thr Ala Arg Val Lys    Phe Glu His Glu
11320                  11325                  11330

tgt    gtg tat gca acc acg    gtg att aat ggt gga    ccg gtt gta tgg 119763
Cys    Val Tyr Ala Thr Thr    Val Ile Asn Gly Gly    Pro Val Val Trp
11335                  11340                  11345

ggg    tct tat aac aac tct    ctt ata tat gta acg    ttt gta aac cac 119808
Gly    Ser Tyr Asn Asn Ser    Leu Ile Tyr Val Thr    Phe Val Asn His
11350                  11355                  11360

tca    acg ttt ttg gat ggc    cta tct gga tac gat    tac agc tgc cgg 119853
Ser    Thr Phe Leu Asp Gly    Leu Ser Gly Tyr Asp    Tyr Ser Cys Arg
11365                  11370                  11375

gaa    aat cta tta tca gga    gat act atg gta aaa    acc gct att tct 119898
Glu    Asn Leu Leu Ser Gly    Asp Thr Met Val Lys    Thr Ala Ile Ser
11380                  11385                  11390
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aca    cct ttg cat gac aaa    att cga att gtt ctg    gga aca cgt aat 119943
Thr    Pro Leu His Asp Lys    Ile Arg Ile Val Leu    Gly Thr Arg Asn
11395                  11400                  11405

tgt    cac gct tat ttt tgg    tgc gtg cag cta aaa    atg att ttt ttt 119988
Cys    His Ala Tyr Phe Trp    Cys Val Gln Leu Lys    Met Ile Phe Phe
11410                  11415                  11420

gca    tgg ttt gta tat ggt    atg tat tta caa ttt    cga cga ata cgt 120033
Ala    Trp Phe Val Tyr Gly    Met Tyr Leu Gln Phe    Arg Arg Ile Arg
11425                  11430                  11435

cgt    atg ttt ggg cca ttc    cga tca tcc tgt gag    tta ata tcc ccc 120078
Arg    Met Phe Gly Pro Phe    Arg Ser Ser Cys Glu    Leu Ile Ser Pro
11440                  11445                  11450

aca    tca tat tca ctg aat    tac gta aca cgg gtt    att tcg aac att 120123
Thr    Ser Tyr Ser Leu Asn    Tyr Val Thr Arg Val    Ile Ser Asn Ile
11455                  11460                  11465

ctt    ctt ggt tac cca tat    aca aag ttg gca agg    ttg tta tgt gat 120168
Leu    Leu Gly Tyr Pro Tyr    Thr Lys Leu Ala Arg    Leu Leu Cys Asp
11470                  11475                  11480

gtt    tcc atg cga cgg gat    ggt atg agt aaa gta    ttt aat gct gac 120213
Val    Ser Met Arg Arg Asp    Gly Met Ser Lys Val    Phe Asn Ala Asp
11485                  11490                  11495

cct    ata agt ttt tta tat    atg cat aaa ggt gtt    acg tta ttg atg 120258
Pro    Ile Ser Phe Leu Tyr    Met His Lys Gly Val    Thr Leu Leu Met
11500                  11505                  11510

ctt    ttg gag gtt atc gct    cat ata tca tct gga    tgt att gtg ctt 120303
Leu    Leu Glu Val Ile Ala    His Ile Ser Ser Gly    Cys Ile Val Leu
11515                  11520                  11525

tta    acg ctt ggc gtt gca    tat aca cca tgc gcg    tta tta tac ccc 120348
Leu    Thr Leu Gly Val Ala    Tyr Thr Pro Cys Ala    Leu Leu Tyr Pro
11530                  11535                  11540

aca    tac att cgg att ctg    gcc tgg gtt gtt gta    tgc acg ctc gct 120393
Thr    Tyr Ile Arg Ile Leu    Ala Trp Val Val Val    Cys Thr Leu Ala
11545                  11550                  11555

ata    gta gag ctt ata tct    tat gtt aga cca aaa    cca acc aag gat 120438
Ile    Val Glu Leu Ile Ser    Tyr Val Arg Pro Lys    Pro Thr Lys Asp
11560                  11565                  11570

aat    cat tta aat cat atc    aat acg ggg gga ata    cgt ggt ata tgc 120483
Asn    His Leu Asn His Ile    Asn Thr Gly Gly Ile    Arg Gly Ile Cys
11575                  11580                  11585

aca    aca tgt tgc gct aca    gta atg tcc ggc ctt    gct ata aaa tgt 120528
Thr    Thr Cys Cys Ala Thr    Val Met Ser Gly Leu    Ala Ile Lys Cys
11590                  11595                  11600

ttt    tat atc gtc ata ttt    gct ata gca gtg gtt    att ttt atg cat 120573
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Phe   Tyr Ile Val Ile  Phe   Ala Ile Ala Val Val   Ile Phe Met His
11605            11610            11615

tac   gaa caa agg gtg cag   gta agc ttg ttt ggg   gaa agt gaa aac 120618
Tyr   Glu Gln Arg Val Gln   Val Ser Leu Phe Gly   Glu Ser Glu Asn
11620            11625            11630

tcc   cag aag cat taa tcatgtgact aaacacgccc attgcgggt tgggtgagcc 120673
Ser   Gln Lys His
11635

tataaattct acaacattgg cggaagatac aggcaactgc aaacacgcaa ttgtcagata 120733

ttttgcagcc atg gcc   tct gct tca att cca   acc gac cca gac gtg     120779
            Met Ala   Ser Ala Ser Ile Pro   Thr Asp Pro Asp Val
                 11640            11645            11650

tct act att tgt gaa   gac ttt atg aat ttg   cta cca gac gaa cct   120824
Ser Thr Ile Cys Glu   Asp Phe Met Asn Leu   Leu Pro Asp Glu Pro
            11655            11660            11665

tcg gat gac ttt gca   ttg gaa gtc acc gat   tgg gca aat gat gaa   120869
Ser Asp Asp Phe Ala   Leu Glu Val Thr Asp   Trp Ala Asn Asp Glu
            11670            11675            11680

gct att ggc tcc act   cca ggc gag gac tcc   aca acg tct aga act   120914
Ala Ile Gly Ser Thr   Pro Gly Glu Asp Ser   Thr Thr Ser Arg Thr
            11685            11690            11695

gtg tat gtg gag cgt   act gca gat aca gca   tat aat cca cgg tat   120959
Val Tyr Val Glu Arg   Thr Ala Asp Thr Ala   Tyr Asn Pro Arg Tyr
            11700            11705            11710

tcc aaa cga agg cac   gga agg cgt gaa agc   tac cac cac aat cgc   121004
Ser Lys Arg Arg His   Gly Arg Arg Glu Ser   Tyr His His Asn Arg
            11715            11720            11725

ccg aaa act ttg gtt   gtt gta tta ccc gat   tca aac cat cat gga   121049
Pro Lys Thr Leu Val   Val Val Leu Pro Asp   Ser Asn His His Gly
            11730            11735            11740

gga aga gac gtg gag   act gga tat gca cgc   atc gaa cgg gga cat   121094
Gly Arg Asp Val Glu   Thr Gly Tyr Ala Arg   Ile Glu Arg Gly His
            11745            11750            11755

cga cga tca tcc aga   tct tat aac act caa   agt tca aga aaa cac   121139
Arg Arg Ser Ser Arg   Ser Tyr Asn Thr Gln   Ser Ser Arg Lys His
            11760            11765            11770

cgt gat cga tcc ctg   tca aat cga aga cgg   cgt cct aca acg cct   121184
Arg Asp Arg Ser Leu   Ser Asn Arg Arg Arg   Arg Pro Thr Thr Pro
            11775            11780            11785

cct gca atg acc acg   gga gaa aga aat gat   cag aca cat gac gaa   121229
Pro Ala Met Thr Thr   Gly Glu Arg Asn Asp   Gln Thr His Asp Glu
            11790            11795            11800
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tcg tac agg ttg cga   ttt tcc aag aga gac   gcc cgc cga gag cgt   121274
Ser Tyr Arg Leu Arg   Phe Ser Lys Arg Asp   Ala Arg Arg Glu Arg
                11805   11810   11815

att cga aaa gag tat   gat atc ccg gtc gat   cga att acg ggc cgt   121319
Ile Arg Lys Glu Tyr   Asp Ile Pro Val Asp   Arg Ile Thr Gly Arg
                11820   11825   11830

gct att gaa gtc gtc   tcc acc gcg gga gcc   agc gtg acc att gac   121364
Ala Ile Glu Val Val   Ser Thr Ala Gly Ala   Ser Val Thr Ile Asp
                11835   11840   11845

tcg gta cgc cat tta   gat gaa aca att gaa   aaa ctg gta gtc cga   121409
Ser Val Arg His Leu   Asp Glu Thr Ile Glu   Lys Leu Val Val Arg
                11850   11855   11860

tat gcc aca ata caa   gag ggt gat tca tgg   gct tcc ggt gga tgt   121454
Tyr Ala Thr Ile Gln   Glu Gly Asp Ser Trp   Ala Ser Gly Gly Cys
                11865   11870   11875

ttt ccg ggg ata aaa   caa aac aca tct tgg   ccg gag ttg atg ttg   121499
Phe Pro Gly Ile Lys   Gln Asn Thr Ser Trp   Pro Glu Leu Met Leu
                11880   11885   11890

tac gga cat gaa ctt   tat cgt acc ttt gag   tca tat aaa atg gac   121544
Tyr Gly His Glu Leu   Tyr Arg Thr Phe Glu   Ser Tyr Lys Met Asp
                11895   11900   11905

tca cgt att gcc cgc   gcg ttg cgt gag aga   gtc ata cgt gga gaa   121589
Ser Arg Ile Ala Arg   Ala Leu Arg Glu Arg   Val Ile Arg Gly Glu
                11910   11915   11920

tct ttg att gaa gcg   ttg gag tct gcg gat   gaa ctg tta acg tgg   121634
Ser Leu Ile Glu Ala   Leu Glu Ser Ala Asp   Glu Leu Leu Thr Trp
                11925   11930   11935

att aaa atg tta gcg   gca aaa aac ttg ccc   atc tac aca aat aat   121679
Ile Lys Met Leu Ala   Ala Lys Asn Leu Pro   Ile Tyr Thr Asn Asn
                11940   11945   11950

ccc att gtt gca acc   tcg aag tca ctt ttg   gag aat tta aag tta   121724
Pro Ile Val Ala Thr   Ser Lys Ser Leu Leu   Glu Asn Leu Lys Leu
                11955   11960   11965

aag ctg ggg cct ttt   gta aga tgt ctt ctt   cta aac agg gac aac   121769
Lys Leu Gly Pro Phe   Val Arg Cys Leu Leu   Leu Asn Arg Asp Asn
                11970   11975   11980

gat ttg ggg tct cgt   act ctc ccc gaa ctg   ttg cgc cag caa cgt   121814
Asp Leu Gly Ser Arg   Thr Leu Pro Glu Leu   Leu Arg Gln Gln Arg
                11985   11990   11995

ttt agt gat atc acg   tgt att act act tat   atg ttt gtt atg att   121859
Phe Ser Asp Ile Thr   Cys Ile Thr Thr Tyr   Met Phe Val Met Ile
                12000   12005   12010

gcc cgc att gct aat   ata gtt gtc cgt ggc   tct aaa ttt gtg gaa   121904

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Ala Arg Ile Ala Asn    Ile Val Val Arg Gly    Ser Lys Phe Val Glu
            12015                   12020                   12025

tat gat gat atc agt    tgt aac gtt caa gtg    tta caa gaa tat aca    121949
Tyr Asp Asp Ile Ser    Cys Asn Val Gln Val    Leu Gln Glu Tyr Thr
            12030                   12035                   12040

ccc ggg tca tgt ctg    gcc ggt gtt tta gag    gcc cta atc acc cac    121994
Pro Gly Ser Cys Leu    Ala Gly Val Leu Glu    Ala Leu Ile Thr His
            12045                   12050                   12055

caa cgc gag tgt ggt    cgt gtt gaa tgt acc    ctc tca act tgg gcc    122039
Gln Arg Glu Cys Gly    Arg Val Glu Cys Thr    Leu Ser Thr Trp Ala
            12060                   12065                   12070

ggg cat ctt tct gac    gcc cgt cca tac ggt    aaa tat ttt aag tgt    122084
Gly His Leu Ser Asp    Ala Arg Pro Tyr Gly    Lys Tyr Phe Lys Cys
            12075                   12080                   12085

agt acc ttt aac tgc    taa aataaaaat acctttttca tgcttgtcaa          122132
Ser Thr Phe Asn Cys
            12090

aacatactaa tttgtatttt taatcattaa gcatatttac ctgttagaat agtaaatacc 122192

tatttcatgc ttgtaaaaca tatcaattta tatttttaat cattatacac caccccttga 122252

ttttatcaat tgtttatgtg attctatatt aataaaagac taataaaaat gtaatattgt 122312

gggagttttt aaggcgacgt tggggatata tgggcgggat tacattgctt tcaaaccaat 122372

atctttgcaa ttccgtctct gattcgggta aaacacacac cagacgtgta ccgaacgttt 122432

aatta atg gat aca acg gga    gct tcc gaa agc agt    caa ccc atc cga 122479
      Met Asp Thr Thr Gly    Ala Ser Glu Ser Ser    Gln Pro Ile Arg
                  12095                   12100

gtg    aat ctt aaa cct gac    ccg ttg gcg tcg ttt    aca caa gtt ata 122524
Val    Asn Leu Lys Pro Asp    Pro Leu Ala Ser Phe    Thr Gln Val Ile
12105                   12110                   12115

ccg    cca ctg gcg ttg gaa    aca acg tgg aca tgc    cct gcc aac tca 122569
Pro    Pro Leu Ala Leu Glu    Thr Thr Trp Thr Cys    Pro Ala Asn Ser
12120                   12125                   12130

cat    gca ccg acg cca tcc    cct ctg tac ggt gtt    aag agg tta tgt 122614
His    Ala Pro Thr Pro Ser    Pro Leu Tyr Gly Val    Lys Arg Leu Cys
12135                   12140                   12145

gct    ctt cga gca aca tgc    ggc cgg gct gat gat    tta cac gct ttt 122659
Ala    Leu Arg Ala Thr Cys    Gly Arg Ala Asp Asp    Leu His Ala Phe
12150                   12155                   12160

ttg    att gga ctt gga cgt    cga gat aaa cca tct    gaa tcc cca atg 122704
Leu    Ile Gly Leu Gly Arg    Arg Asp Lys Pro Ser    Glu Ser Pro Met
12165                   12170                   12175
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tat   gtt gac cta cag ccg   ttt tgc agc ctc cta   aat tcc caa cga 122749
Tyr   Val Asp Leu Gln Pro   Phe Cys Ser Leu Leu   Asn Ser Gln Arg
12180                 12185                 12190

ctg   tta ccg gaa atg gct   aat tat aac acc cta   tgc gat gca ccc 122794
Leu   Leu Pro Glu Met Ala   Asn Tyr Asn Thr Leu   Cys Asp Ala Pro
12195                 12200                 12205

ttc   agc gcc gca act cag   cag atg atg ctg gag   tcc gga cag ctg 122839
Phe   Ser Ala Ala Thr Gln   Gln Met Met Leu Glu   Ser Gly Gln Leu
12210                 12215                 12220

ggt   gta cat ctg gcg gct   att ggg tat cac tgt   cat tgt aaa tcc 122884
Gly   Val His Leu Ala Ala   Ile Gly Tyr His Cys   His Cys Lys Ser
12225                 12230                 12235

ccc   ttc tcg gcg gag tgt   tgg acc ggt gca tcc   gag gca tac gat 122929
Pro   Phe Ser Ala Glu Cys   Trp Thr Gly Ala Ser   Glu Ala Tyr Asp
12240                 12245                 12250

cat   gtt gta tgt ggg gga   aaa gcc cga gcg gct   gtc ggc gga cta 122974
His   Val Val Cys Gly Gly   Lys Ala Arg Ala Ala   Val Gly Gly Leu
12255                 12260                 12265

tga actacacatt taaataaaaa tacgtacaat cgaaaaaagg tgtattttat      123027

ttagtgatta catcaatacg ccctccgtag gttcggcaaa tctaacccgg tgacagaccg 123087

gctgttgacg gggggatcct ttcaatattc cacgaatgtt ggaaactgtt ggtcttcctt 123147

gggctgttag ggttgggaga gtgggtcggt ctgacgtggt aagtgcggct tcaccagagt 123207

cttctgtcaa gttgcatgtt aacgtcgacg ttatacaagg tgtttcagtg gtattttgcg 123267

cgatattctc ccaaaacata agacgttgca tatgcatatc ataaatatta ccccgccata 123327

aacagagatc tctgttactt aaaccgtgtg tgcggagaaa tgtacccata gatggagcca 123387

gtaaatgcaa gcccgtacca cattcatacc caagcgttgt ggatcgcttt tccttcatcg 123447

ccaaaataat aaatgtcctt gcacctccag gcgtcattgc acgccctatt agacgggcaa 123507

ggctaagacg ttcgccgggt ttgctatatt tgccaataat tacataggtt ttggtacagg 123567

taatgtgtaa cgttcctccg cctggcaggt ctacagttct ccccgcaagc actcgtaata 123627

aacatcgcgt ttctgacgcg ggattttcct cggcggtggc gtttaaactg ggacgcacca 123687

gagtggagcc cataataaat gcgggaacat gcccatatgc aagtgtctca gaaattacat 123747

gcattttatg attttacggg ggtgggttac dataatagct attaaacaaa cacccaataa 123807

agcatttttt gtagaacctt tattgggtaa cacagtcttt tcacgtgaca ggcaatgtat 123867

aaataacgta cggatgcact taagatgtat cgcacataaa tttatataag ctgtagcaaa 123927

gtataagcaa atcctgttaa tattatattt ttgggatccg ca atg   tcc agg gta  123981
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                                         Met     Ser Arg Val
                                         12270

tcg gag   tat ggg gta ccg gaa   ggt gtt cgg gaa tct   gat agc gat 124026
Ser Glu   Tyr Gly Val Pro Glu   Gly Val Arg Glu Ser   Asp Ser Asp
    12275                 12280               12285

aca gac   tct gtg ttt atg tat   cag cat aca gag ctt   atg cag aac 124071
Thr Asp   Ser Val Phe Met Tyr   Gln His Thr Glu Leu   Met Gln Asn
    12290                 12295               12300

aac gcg   tcg cca ctc gtc gtt   caa aca aga cca ccg   gcg gtt ctt 124116
Asn Ala   Ser Pro Leu Val Val   Gln Thr Arg Pro Pro   Ala Val Leu
    12305                 12310               12315

att cca   ctg gtt gat gtc cca   agg cca cga tcc cgg   aga aag gcg 124161
Ile Pro   Leu Val Asp Val Pro   Arg Pro Arg Ser Arg   Arg Lys Ala
    12320                 12325               12330

tcc gcg   caa ctg aaa atg caa   atg gac agg tta tgc   aac gta ctg 124206
Ser Ala   Gln Leu Lys Met Gln   Met Asp Arg Leu Cys   Asn Val Leu
    12335                 12340               12345

ggt gta   gta ctc cag atg gcg   acg ttg gct ttg gtg   aca tat ata 124251
Gly Val   Val Leu Gln Met Ala   Thr Leu Ala Leu Val   Thr Tyr Ile
    12350                 12355               12360

gct ttt   gtt gtg cat aca cgc   gcg aca agc tgc aag   cga gaa taa 124296
Ala Phe   Val Val His Thr Arg   Ala Thr Ser Cys Lys   Arg Glu
    12365                 12370               12375

ataccttccc cttccggaca gtagtttcat gtagttgagt tgggaggttc ctcgggaaaa 124356

acggcaacaa tggcgaccac gacagcagta agggtgagaa taccaaaaag aattaaaaaa 124416

gccggtacac agcatttgcg aattcttaga aaagccagct gaagtctgtg gattccatca 124476

taagcgcagt ctaggcaatc gtaagactgt tgggtggtgc cattctccac gtgaggaaaa 124536

agaggcgggg agaacaccag actctcgcgg cttctgtaag ggggggggcgc gtctgccacg 124596

gcctcggcgt atgtgggtag gtaggggatg ggggtcgcaa cgtcatccat gctggggggac 124656

gacgtgaggg tgaccggcgg ggtcccaggt cggcgggagt agtgcacggt cgccatccga 124716

gcagtaaacg aggggtggac gcaaaaggcg cgggtttttgt taaaggctgg cggggggggg 124776

tttcccggca aaaaatccca tcccccccga tggtcgcccc gcaaacgcgc ggggaggtgg 124836

ggtcgctttt tttttctctct ctcgagggggg ccgcgagagg gctggcct            124884
```

<210>   52
<211>   278
<212>   PRT
<213>   Varicella zoster

383

<400> 52

Met Phe Cys Thr Ser Pro Ala Thr Arg Gly Asp Ser Ser Glu Ser Lys
1   5   10   15

Pro Gly Ala Ser Val Asp Val Asn Gly Lys Met Glu Tyr Gly Ser Ala
                20   25   30

Pro Gly Pro Leu Asn Gly Arg Asp Thr Ser Arg Gly Pro Gly Ala Phe
            35   40   45

Cys Thr Pro Gly Trp Glu Ile His Pro Ala Arg Leu Val Glu Asp Ile
        50   55   60

Asn Arg Val Phe Leu Cys Ile Ala Gln Ser Ser Gly Arg Val Thr Arg
65   70   75   80

Asp Ser Arg Arg Leu Arg Arg Ile Cys Leu Asp Phe Tyr Leu Met Gly
                85   90   95

Arg Thr Arg Gln Arg Pro Thr Leu Ala Cys Trp Glu Glu Leu Leu Gln
                100   105   110

Leu Gln Pro Thr Gln Thr Gln Cys Leu Arg Ala Thr Leu Met Glu Val
            115   120   125

Ser His Arg Pro Pro Arg Gly Glu Asp Gly Phe Ile Glu Ala Pro Asn
        130   135   140

Val Pro Leu His Arg Ser Ala Leu Glu Cys Asp Val Ser Asp Asp Gly
145   150   155   160

Gly Glu Asp Asp Ser Asp Asp Asp Gly Ser Thr Pro Ser Asp Val Ile
                165   170   175

Glu Phe Arg Asp Ser Asp Ala Glu Ser Ser Asp Gly Glu Asp Phe Ile
            180   185   190

Val Glu Glu Glu Ser Glu Glu Ser Thr Asp Ser Cys Glu Pro Asp Gly
        195   200   205

Val Pro Gly Asp Cys Tyr Arg Asp Gly Asp Gly Cys Asn Thr Pro Ser
    210   215   220

384

Pro Lys Arg Pro Gln Arg Ala Ile Glu Arg Tyr Ala Gly Ala Glu Thr
225   230   235   240

Ala Glu Tyr Thr Ala Ala Lys Ala Leu Thr Ala Leu Gly Glu Gly Gly
                245   250   255

Val Asp Trp Lys Arg Arg Arg His Glu Ala Pro Arg Arg His Asp Ile
                260   265   270

Pro Pro Pro His Gly Val
            275

<210> 53
<211> 180
<212> PRT
<213> Varicella zoster

<400> 53

Met Asn Leu Cys Gly Ser Arg Gly Glu His Pro Gly Gly Glu Tyr Ala
1   5   10   15

Gly Leu Tyr Cys Thr Arg His Asp Thr Pro Ala His Gln Ala Leu Met
                20   25   30

Asn Asp Ala Glu Arg Tyr Phe Ala Ala Ala Leu Cys Ala Ile Ser Thr
            35   40   45

Glu Ala Tyr Glu Ala Phe Ile His Ser Pro Ser Glu Arg Pro Cys Ala
        50   55   60

Ser Leu Trp Gly Arg Ala Lys Asp Ala Phe Gly Arg Met Cys Gly Glu
65   70   75   80

Leu Ala Ala Asp Arg Gln Arg Pro Pro Ser Val Pro Pro Ile Arg Arg
                85   90   95

Ala Val Leu Ser Leu Leu Arg Glu Gln Cys Met Pro Asp Pro Gln Ser
                100   105   110

His Leu Glu Leu Ser Glu Arg Leu Ile Leu Met Ala Tyr Trp Cys Cys
            115   120   125

Leu Gly His Ala Gly Leu Pro Thr Ile Gly Leu Ser Pro Asp Asn Lys

385

Cys Ile Arg Ala Glu Leu Tyr Asp Arg Pro Gly Gly Ile Cys His Arg
145   150   155   160

Leu Phe Asp Ala Tyr Leu Gly Cys Gly Ser Leu Gly Val Pro Arg Thr
                165   170   175

Tyr Glu Arg Ser
            180

<210>   54
<211>   102
<212>   PRT
<213>   Varicella zoster

<400>   54

Met Ala Gly Gln Asn Thr Met Glu Gly Glu Ala Val Ala Leu Leu Met
1   5   10   15

Glu Ala Val Val Thr Pro Arg Ala Gln Pro Asn Asn Thr Thr Ile Thr
                20   25   30

Ala Ile Gln Pro Ser Arg Ser Ala Glu Lys Cys Tyr Tyr Ser Asp Ser
            35   40   45

Glu Asn Glu Thr Ala Asp Glu Phe Leu Arg Arg Ile Gly Lys Tyr Gln
        50   55   60

His Lys Ile Tyr His Arg Lys Lys Phe Cys Tyr Ile Thr Leu Ile Ile
65   70   75   80

Val Phe Val Phe Ala Met Thr Gly Ala Ala Phe Ala Leu Gly Tyr Ile
                85   90   95

Thr Ser Gln Phe Val Gly
            100

<210>   55
<211>   1310
<212>   PRT
<213>   Varicella zoster

<400>   55

Met Asp Thr Pro Pro Met Gln Arg Ser Thr Pro Gln Arg Ala Gly Ser
1   5   10   15

Pro Asp Thr Leu Glu Leu Met Asp Leu Leu Asp Ala Ala Ala Ala Ala
            20   25   30

Ala Glu His Arg Ala Arg Val Val Thr Ser Ser Gln Pro Asp Asp Leu
        35   40   45

Leu Phe Gly Glu Asn Gly Val Met Val Gly Arg Glu His Glu Ile Val
        50   55   60

Ser Ile Pro Ser Val Ser Gly Leu Gln Pro Glu Pro Arg Thr Glu Asp
65   70   75   80

Val Gly Glu Glu Leu Thr Gln Asp Asp Tyr Val Cys Glu Asp Gly Gln
                85   90   95

Asp Leu Met Gly Ser Pro Val Ile Pro Leu Ala Glu Val Phe His Thr
            100   105   110

Arg Phe Ser Glu Ala Gly Ala Arg Glu Pro Thr Gly Ala Asp Arg Ser
        115   120   125

Leu Glu Thr Val Ser Leu Gly Thr Lys Leu Ala Arg Ser Pro Lys Pro
    130   135   140

Pro Met Asn Asp Gly Glu Thr Gly Arg Gly Thr Thr Pro Pro Phe Pro
145   150   155   160

Gln Ala Phe Ser Pro Val Ser Pro Ala Ser Pro Val Gly Asp Ala Ala
            165   170   175

Gly Asn Asp Gln Arg Glu Asp Gln Arg Ser Ile Pro Arg Gln Thr Thr
            180   185   190

Arg Gly Asn Ser Pro Gly Leu Pro Ser Val Val His Arg Asp Arg Gln
        195   200   205

Thr Gln Ser Ile Ser Gly Lys Lys Pro Gly Asp Glu Gln Ala Gly His
    210   215   220

Ala His Ala Ser Gly Asp Gly Val Val Leu Gln Lys Thr Gln Arg Pro

387

Ala Gln Gly Lys Ser Pro Lys Lys Lys Thr Leu Lys Val Lys Val Pro
            245   250   255

Leu Pro Ala Arg Lys Pro Gly Gly Pro Val Pro Gly Pro Val Glu Gln
            260   265   270

Leu Tyr His Val Leu Ser Asp Ser Val Pro Ala Lys Gly Ala Lys Ala
            275   280   285

Asp Leu Pro Phe Glu Thr Asp Asp Thr Arg Pro Arg Lys His Asp Ala
            290   295   300

Arg Gly Ile Thr Pro Arg Val Pro Gly Arg Ser Ser Gly Gly Lys Pro
305   310   315   320

Arg Ala Phe Leu Ala Leu Pro Gly Arg Ser His Ala Pro Asp Pro Ile
            325   330   335

Glu Asp Asp Ser Pro Val Glu Lys Lys Pro Lys Ser Arg Glu Phe Val
            340   345   350

Ser Ser Ser Ser Ser Ser Ser Ser Trp Gly Ser Ser Ser Glu Asp Glu
            355   360   365

Asp Asp Glu Pro Arg Arg Val Ser Val Gly Ser Glu Thr Thr Gly Ser
            370   375   380

Arg Ser Gly Arg Glu His Ala Pro Ser Pro Ser Asn Ser Asp Asp Ser
385   390   395   400

Asp Ser Asn Asp Gly Gly Ser Thr Lys Gln Asn Ile Gln Pro Gly Tyr
            405   410   415

Arg Ser Ile Ser Gly Pro Asp Pro Arg Ile Arg Lys Thr Lys Arg Leu
            420   425   430

Ala Gly Glu Pro Gly Arg Gln Arg Gln Lys Ser Phe Ser Leu Pro Arg
            435   440   445

Ser Arg Thr Pro Ile Ile Pro Pro Val Ser Gly Pro Leu Met Met Pro
            450   455   460

388

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Asp Gly Ser Pro Trp Pro Gly Ser Ala Pro Leu Pro Ser Asn Arg Val
465                 470                 475                 480


Arg Phe Gly Pro Ser Gly Glu Thr Arg Glu Gly His Trp Glu Asp Glu
                485                 490                 495


Ala Val Arg Ala Ala Arg Ala Arg Tyr Glu Ala Ser Thr Glu Pro Val
            500                 505                 510


Pro Leu Tyr Val Pro Glu Leu Gly Asp Pro Ala Arg Gln Tyr Arg Ala
            515                 520                 525


Leu Ile Asn Leu Ile Tyr Cys Pro Asp Arg Asp Pro Ile Ala Trp Leu
        530                 535                 540


Gln Asn Pro Lys Leu Thr Gly Val Asn Ser Ala Leu Asn Gln Phe Tyr
545                 550                 555                 560


Gln Lys Leu Leu Pro Pro Gly Arg Ala Gly Thr Ala Val Thr Gly Ser
                565                 570                 575


Val Ala Ser Pro Val Pro His Val Gly Glu Ala Met Ala Thr Gly Glu
            580                 585                 590


Ala Leu Trp Ala Leu Pro His Ala Ala Ala Ala Val Ala Met Ser Arg
            595                 600                 605


Arg Tyr Asp Arg Ala Gln Lys His Phe Ile Leu Gln Ser Leu Arg Arg
        610                 615                 620


Ala Phe Ala Ser Met Ala Tyr Pro Glu Ala Thr Gly Ser Ser Pro Ala
625                 630                 635                 640


Ala Arg Ile Ser Arg Gly His Pro Ser Pro Thr Thr Pro Ala Thr Gln
                645                 650                 655


Ala Pro Asp Pro Gln Pro Ser Ala Ala Ala Arg Ser Leu Ser Val Cys
            660                 665                 670


Pro Pro Asp Asp Arg Leu Arg Thr Pro Arg Lys Arg Lys Ser Gln Pro
            675                 680                 685
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389

Val Glu Ser Arg Ser Leu Leu Asp Lys Ile Arg Glu Thr Pro Val Ala
    690   695   700

Asp Ala Arg Val Ala Asp Asp His Val Val Ser Lys Ala Lys Arg Arg
705   710   715   720

Val Ser Glu Pro Val Thr Ile Thr Ser Gly Pro Val Val Asp Pro Pro
            725   730   735

Ala Val Ile Thr Met Pro Leu Asp Gly Pro Ala Pro Asn Gly Gly Phe
            740   745   750

Arg Arg Ile Pro Arg Gly Ala Leu His Thr Pro Val Pro Ser Asp Gln
        755   760   765

Ala Arg Lys Ala Tyr Cys Thr Pro Glu Thr Ile Ala Arg Leu Val Asp
    770   775   780

Asp Pro Leu Phe Pro Thr Ala Trp Arg Pro Ala Leu Ser Phe Asp Pro
785   790   795   800

Gly Ala Leu Ala Glu Ile Ala Ala Arg Arg Pro Gly Gly Gly Asp Arg
            805   810   815

Arg Phe Gly Pro Pro Ser Gly Val Glu Ala Leu Arg Arg Arg Cys Ala
        820   825   830

Trp Met Arg Gln Ile Pro Asp Pro Glu Asp Val Arg Leu Leu Ile Ile
        835   840   845

Tyr Asp Pro Leu Pro Gly Glu Asp Ile Asn Gly Pro Leu Glu Ser Thr
    850   855   860

Leu Ala Thr Asp Pro Gly Pro Ser Trp Ser Pro Ser Arg Gly Gly Leu
865   870   875   880

Ser Val Val Leu Ala Ala Leu Ser Asn Arg Leu Cys Leu Pro Ser Thr
            885   890   895

His Ala Trp Ala Gly Asn Trp Thr Gly Pro Pro Asp Val Ser Ala Leu
        900   905   910

Asn Ala Arg Gly Val Leu Leu Leu Ser Thr Arg Asp Leu Ala Phe Ala
       915   920   925

Gly Ala Val Glu Tyr Leu Gly Ser Arg Leu Ala Ser Ala Arg Arg Arg
       930   935   940

Leu Leu Val Leu Asp Ala Val Ala Leu Glu Arg Trp Pro Arg Asp Gly
945   950   955   960

Pro Ala Leu Ser Gln Tyr His Val Tyr Val Arg Ala Pro Ala Arg Pro
                965   970   975

Asp Ala Gln Ala Val Val Arg Trp Pro Asp Ser Ala Val Thr Glu Gly
            980   985   990

Leu Ala Arg Ala Val Phe Ala Ser Ser Arg Thr Phe Gly Pro Ala Ser
       995   1000   1005

Phe Ala Arg Ile Glu Thr Ala Phe Ala Asn Leu Tyr Pro Gly Glu
    1010   1015   1020

Gln Pro Leu Cys Leu Cys Arg Gly Gly Asn Val Ala Tyr Thr Val
    1025   1030   1035

Cys Thr Arg Ala Gly Pro Lys Thr Arg Val Pro Leu Ser Pro Arg
    1040   1045   1050

Glu Tyr Arg Gln Tyr Val Leu Pro Gly Phe Asp Gly Cys Lys Asp
    1055   1060   1065

Leu Ala Arg Gln Ser Arg Gly Leu Gly Leu Gly Ala Ala Asp Phe
    1070   1075   1080

Val Asp Glu Ala Ala His Ser His Arg Ala Ala Asn Arg Trp Gly
    1085   1090   1095

Leu Gly Ala Ala Leu Arg Pro Val Phe Leu Pro Glu Gly Arg Arg
    1100   1105   1110

Pro Gly Ala Ala Gly Pro Glu Ala Gly Asp Val Pro Thr Trp Ala
    1115   1120   1125

Arg Val Phe Cys Arg His Ala Leu Leu Glu Pro Asp Pro Ala Ala

391

Glu Pro Leu Val Leu Pro Pro Val Ala Gly Arg Ser Val Ala Leu
    1145   1150   1155

Tyr Ala Ser Ala Asp Glu Ala Arg Asn Ala Leu Pro Pro Ile Pro
    1160   1165   1170

Arg Val Met Trp Pro Pro Gly Phe Gly Ala Ala Glu Thr Val Leu
    1175   1180   1185

Glu Gly Ser Asp Gly Thr Arg Phe Val Phe Gly His His Gly Gly
    1190   1195   1200

Ser Glu Arg Pro Ser Glu Thr Gln Ala Gly Arg Gln Arg Arg Thr
    1205   1210   1215

Ala Asp Asp Arg Glu His Ala Leu Glu Leu Asp Asp Trp Glu Val
    1220   1225   1230

Gly Cys Glu Asp Ala Trp Asp Ser Glu Glu Gly Gly Gly Asp Asp
    1235   1240   1245

Gly Asp Ala Pro Gly Ser Ser Phe Gly Val Ser Ile Val Ser Val
    1250   1255   1260

Ala Pro Gly Val Leu Arg Asp Arg Arg Val Gly Leu Arg Pro Ala
    1265   1270   1275

Val Lys Val Glu Leu Leu Ser Ser Ser Ser Ser Ser Glu Asp Glu
    1280   1285   1290

Asp Asp Val Trp Gly Gly Arg Gly Gly Arg Ser Pro Pro Gln Ser
    1295   1300   1305

Arg Gly
    1310

<210>   56
<211>   467
<212>   PRT
<213>   Varicella zoster

<400>   56

```
Met Asp Thr Ile Leu Ala Gly Gly Ser Gly Thr Ser Asp Ala Ser Asp
1               5                   10                  15

Asn Thr Cys Thr Ile Cys Met Ser Thr Val Ser Asp Leu Gly Lys Thr
            20              25                  30

Met Pro Cys Leu His Asp Phe Cys Phe Val Cys Ile Arg Ala Trp Thr
            35              40                  45

Ser Thr Ser Val Gln Cys Pro Leu Cys Arg Cys Pro Val Gln Ser Ile
        50              55                  60

Leu His Lys Ile Val Ser Asp Thr Ser Tyr Lys Glu Tyr Glu Val His
65                  70                  75                  80

Pro Ser Asp Asp Asp Gly Phe Ser Glu Pro Ser Phe Glu Asp Ser Ile
            85                  90                  95

Asp Ile Leu Pro Gly Asp Val Ile Asp Leu Leu Pro Pro Ser Pro Gly
            100             105                 110

Pro Ser Arg Glu Ser Ile Gln Gln Pro Thr Ser Arg Ser Ser Arg Glu
        115             120                 125

Pro Ile Gln Ser Pro Asn Pro Gly Pro Leu Gln Ser Ser Ala Arg Glu
        130             135                 140

Pro Thr Ala Glu Ser Pro Ser Asp Ser Gln Gln Asp Ser Ile Gln Pro
145                 150                 155                 160

Pro Thr Arg Asp Ser Ser Pro Gly Val Thr Lys Thr Cys Ser Thr Ala
            165             170                 175

Ser Phe Leu Arg Lys Val Phe Phe Lys Asp Gln Pro Ala Val Arg Ser
            180             185                 190

Ala Thr Pro Val Val Tyr Gly Ser Ile Glu Ser Ala Gln Gln Pro Arg
        195             200                 205

Thr Gly Gly Gln Asp Tyr Arg Asp Arg Pro Val Ser Val Gly Ile Asn
    210             215                 220
```

393

Gln Asp Pro Arg Thr Met Asp Arg Leu Pro Phe Arg Ala Thr Asp Arg
225   230   235   240

Gly Thr Glu Gly Asn Ala Arg Phe Pro Cys Tyr Met Gln Pro Leu Leu
                245   250   255

Gly Trp Leu Asp Asp Gln Leu Ala Glu Leu Tyr Gln Pro Glu Ile Val
                260   265   270

Glu Pro Thr Lys Met Leu Ile Leu Asn Tyr Ile Gly Ile Tyr Gly Arg
                275   280   285

Asp Glu Ala Gly Leu Lys Thr Ser Leu Arg Cys Leu Leu His Asp Ser
    290   295   300

Thr Gly Pro Phe Val Thr Asn Met Leu Phe Leu Leu Asp Arg Cys Thr
305   310   315   320

Asp Pro Thr Arg Leu Thr Met Gln Thr Trp Thr Trp Lys Asp Thr Ala
                325   330   335

Ile Gln Leu Ile Thr Gly Pro Ile Val Arg Pro Glu Thr Thr Ser Thr
                340   345   350

Gly Glu Thr Ser Arg Gly Asp Glu Arg Asp Thr Arg Leu Val Asn Thr
                355   360   365

Pro Gln Lys Val Arg Leu Phe Ser Val Leu Pro Gly Ile Lys Pro Gly
    370   375   380

Ser Ala Arg Gly Ala Lys Arg Arg Leu Phe His Thr Gly Arg Asp Val
385   390   395   400

Lys Arg Cys Leu Thr Ile Asp Leu Thr Ser Glu Ser Asp Ser Ala Cys
                405   410   415

Lys Gly Ser Lys Thr Arg Lys Val Ala Ser Pro Gln Gly Glu Ser Asn
                420   425   430

Thr Pro Ser Thr Ser Gly Ser Thr Ser Gly Ser Leu Lys His Leu Thr
                435   440   445

Lys Lys Ser Ser Ala Gly Lys Ala Gly Lys Gly Ile Pro Asn Lys Met

394

Lys Lys Ser
465

<210> 57
<211> 305
<212> PRT
<213> Varicella zoster

<400> 57

Met Asp Val Ser Gly Glu Pro Thr Val Cys Ser Asn Ala Tyr Ala Asn
1   5   10   15

Glu Met Lys Leu Ser Asp Ser Lys Asp Ile Tyr Val Leu Ala His Pro
                20   25   30

Val Thr Lys Lys Thr Arg Lys Arg Pro Arg Gly Leu Pro Leu Gly Val
        35   40   45

Lys Leu Asp Pro Pro Thr Phe Lys Leu Asn Asn Met Ser His His Tyr
        50   55   60

Asp Thr Glu Thr Phe Thr Pro Val Ser Ser Gln Leu Asp Ser Val Glu
65   70   75   80

Val Phe Ser Lys Phe Asn Ile Ser Pro Glu Trp Tyr Asp Leu Leu Ser
                85   90   95

Asp Glu Leu Lys Glu Pro Tyr Ala Lys Gly Ile Phe Leu Glu Tyr Asn
                100   105   110

Arg Leu Leu Asn Ser Gly Glu Glu Ile Leu Pro Ser Thr Gly Asp Ile
        115   120   125

Phe Ala Trp Thr Arg Phe Cys Gly Pro Gln Ser Ile Arg Val Val Ile
        130   135   140

Ile Gly Gln Asp Pro Tyr Pro Thr Ala Gly His Ala His Gly Leu Ala
145   150   155   160

Phe Ser Val Lys Arg Gly Ile Thr Pro Pro Ser Ser Leu Lys Asn Ile
                165   170   175

395

Phe Ala Ala Leu Met Glu Ser Tyr Pro Asn Met Thr Pro Pro Thr His
        180   185   190

Gly Cys Leu Glu Ser Trp Ala Arg Gln Gly Val Leu Leu Leu Asn Thr
        195   200   205

Thr Leu Thr Val Arg Arg Gly Thr Pro Gly Ser His Val Tyr Leu Gly
    210   215   220

Trp Gly Arg Leu Val Gln Arg Val Leu Gln Arg Leu Cys Glu Asn Arg
225   230   235   240

Thr Gly Leu Val Phe Met Leu Trp Gly Ala His Ala Gln Lys Thr Thr
                245   250   255

Gln Pro Asn Ser Arg Cys His Leu Val Leu Thr His Ala His Pro Ser
        260   265   270

Pro Leu Ser Arg Val Pro Phe Arg Asn Cys Arg His Phe Val Gln Ala
        275   280   285

Asn Glu Tyr Phe Thr Arg Lys Gly Glu Pro Glu Ile Asp Trp Ser Val
    290   295   300

Ile
305

<210> 58
<211> 71
<212> PRT
<213> Varicella zoster

<400> 58

Met Asp Val Arg Glu Arg Asn Val Phe Gly Asn Ala Ser Val Ala Thr
1   5   10   15

Pro Gly Glu His Gln Lys Phe Val Arg Glu Leu Ile Leu Ser Gly His
                20   25   30

Asn Asn Val Val Leu Gln Thr Tyr Thr Gly Lys Trp Ser Asp Cys Arg
        35   40   45

Lys His Gly Lys Ser Val Met Tyr Asn Thr Gly Glu Ala Arg His Pro

Thr Cys Lys Ala His Gln Arg
65   70

<210> 59
<211> 331
<212> PRT
<213> Varicella zoster

<400> 59

Met Gln Arg Ile Arg Pro Tyr Trp Ile Lys Phe Glu Gln Thr Gly Gly
1   5   10   15

Ala Gly Met Ala Asp Gly Met Ser Gly Ile Asn Ile Pro Ser Ile Leu
            20   25   30

Gly Cys Ser Val Thr Ile Asp Asn Leu Leu Thr Arg Ala Glu Glu Gly
        35   40   45

Leu Asp Val Ser Asp Val Ile Glu Asp Leu Arg Ile Gln Ala Ile Pro
        50   55   60

Arg Phe Val Cys Glu Ala Arg Glu Val Thr Gly Leu Lys Pro Arg Phe
65   70   75   80

Leu Ala Asn Ser Val Val Ser Leu Arg Val Lys Pro Glu His Gln Glu
                85   90   95

Thr Val Leu Val Val Leu Asn Gly Asp Ser Ser Glu Val Ser Cys Asp
            100   105   110

Arg Tyr Tyr Met Glu Cys Val Thr Gln Pro Ala Phe Arg Gly Phe Ile
        115   120   125

Phe Ser Val Leu Thr Ala Val Glu Asp Arg Val Tyr Thr Val Gly Val
        130   135   140

Pro Pro Arg Leu Leu Ile Tyr Arg Met Thr Leu Phe Arg Pro Asp Asn
145   150   155   160

Val Leu Asp Phe Thr Leu Cys Val Ile Leu Met Tyr Leu Glu Gly Ile
                165   170   175

397

Gly Pro Ser Gly Ala Ser Pro Ser Leu Phe Val Gln Leu Ser Val Tyr
            180   185   190

Leu Arg Arg Val Glu Cys Gln Ile Gly Pro Leu Glu Lys Met Arg Arg
            195   200   205

Phe Leu Tyr Glu Gly Val Leu Trp Leu Leu Asn Thr Leu Met Tyr Val
    210   215   220

Val Asp Asn Asn Pro Phe Thr Lys Thr Arg Val Leu Pro His Tyr Met
225   230   235   240

Phe Val Lys Leu Leu Asn Pro Gln Pro Gly Thr Ala Pro Asn Ile Ile
            245   250   255

Lys Ala Ile Tyr Ser Cys Gly Val Gly Gln Arg Phe Asp Leu Pro His
            260   265   270

Gly Thr Pro Pro Cys Pro Asp Gly Val Val Gln Val Pro Pro Gly Leu
            275   280   285

Leu Asn Gly Pro Leu Arg Asp Ser Glu Tyr Gln Lys Ser Val Tyr Phe
    290   295   300

Trp Trp Leu Asn Arg Thr Met Val Thr Pro Lys Asn Val Gln Leu Phe
305   310   315   320

Glu Thr Tyr Lys Asn Ser Pro Arg Val Val Lys
            325   330

<210> 60
<211> 541
<212> PRT
<213> Varicella zoster

<400> 60

Met Glu Phe Pro Tyr His Ser Thr Val Ser Tyr Asn Gly Val Thr Phe
1   5   10   15

Tyr Phe Asn Glu Arg Ala Thr Arg Ala Tyr Phe Ile Cys Gly Gly Cys
            20   25   30

Leu Ile Ser Ile Pro Arg Lys His Gly Gly Glu Ile Ala Lys Phe Gly

398

```
                35                      40                      45

His Val Val Arg Gly Val Gly Pro Gly Asp Arg Ser Val Ala Ser Tyr
    50                      55                      60

Val Arg Ser Glu Leu Asn Arg Thr Gly Lys Thr Trp Ala Val Ser Ser
65                      70                      75                      80

Asn Asn Asn Cys Val Phe Leu Asp Arg Val Ala Leu Leu Ala Ala Gly
                85                      90                      95

Ser Gly Ala Val Asp Arg Asp Leu Cys Gly Thr Phe Asp Val Glu Val
                100                     105                     110

Glu Asp Pro Thr Leu Ala Asp Tyr Leu Val Ser Leu Pro Val Thr His
                115                     120                     125

Leu Thr Leu Val Ala Gly Val Asp Val Thr Arg Glu Asn Lys Leu Lys
    130                     135                     140

Leu Phe Pro Thr Pro Thr Ala Ile Asn Thr Thr Asn Gly Phe Met Tyr
145                     150                     155                     160

Val Pro Asn Glu Ala Ser Phe Ser Leu Val Tyr Met Arg Met Leu Glu
                165                     170                     175

Leu Pro Glu Ser Leu Gln Glu Leu Val Ser Gly Leu Phe Asp Gly Thr
                180                     185                     190

Pro Glu Ile Arg Asp Ala Leu Asn Gly Ser Asn Asp Asp Glu Lys Thr
                195                     200                     205

Ser Ile Ile Val Ser Arg Arg Ala Ala Asp Val Val Thr Glu Asp Val
    210                     215                     220

Lys Ala Asp Asp Val Pro Ile Ser Gly Glu Pro Tyr Ser Glu Lys Gln
225                     230                     235                     240

Pro Arg Arg Arg Lys Lys Ser Asp His Ile Thr Leu Ser Asn Phe Val
                245                     250                     255

Gln Ile Arg Thr Ile Pro Arg Val Met Asp Ile Trp Asp Pro Arg His
                260                     265                     270
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399

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Lys Ala Thr Thr His Cys Ile Arg Ala Leu Ser Cys Ala Val Phe Phe
    275                 280                 285

Ala Asp Glu Val Ile Phe Lys Ala Arg Lys Trp Pro Gly Leu Glu Asp
    290                 295                 300

Glu Leu Asn Glu Ala Arg Glu Thr Ile Tyr Thr Ala Val Val Ala Val
305                 310                 315                 320

Tyr Gly Glu Arg Gly Glu Leu Pro Phe Phe Gly His Ala Tyr Gly Arg
                325                 330                 335

Asp Leu Thr Ser Cys Gln Arg Phe Val Ile Val Gln Tyr Ile Leu Ser
            340                 345                 350

Arg Trp Glu Ala Phe Asn Cys Tyr Ala Val Ile Glu Asp Leu Thr Arg
        355                 360                 365

Ser Tyr Val Asn Ala Leu Pro Ser Asp Asp Asp Thr Asp Gln Val Ala
    370                 375                 380

Gln Asp Leu Ile Arg Thr Ile Val Asp Thr Ala Asn Ser Leu Leu Arg
385                 390                 395                 400

Glu Val Gly Phe Ile Gly Thr Leu Ala Glu Thr Leu Leu Phe Leu Pro
                405                 410                 415

Leu Pro Gln Leu Pro Cys Tyr Lys Glu Thr Ser His Leu Ala Lys Lys
            420                 425                 430

Glu Gly Val Arg Ile Leu Arg Leu Ala Lys Thr Gly Val Gly Leu Ser
            435                 440                 445

Asp Thr Val Pro Val Asp Val Ser Val Thr Glu Arg His Glu Tyr Glu
    450                 455                 460

Ile Ser Arg Tyr Leu Asp Thr Leu Tyr Ser Gly Asp Pro Cys Tyr Asn
465                 470                 475                 480

Gly Ala Val Arg Leu Cys Arg Leu Leu Gly Ser Ser Ile Pro Ile Ala
            485                 490                 495
```

400

Leu Tyr Tyr Asn Thr Ile Ser Gly Asn Ala Phe Glu Pro Tyr Phe Ala
        500   505   510

Gly Arg Arg Tyr Ile Ala Tyr Leu Gly Ala Leu Phe Phe Gly Arg Val
        515   520   525

His Gln Thr Pro Phe Gly Asp Gly Lys Lys Thr Gln Arg
    530   535   540

<210> 61
<211> 258
<212> PRT
<213> Varicella zoster

<400> 61

Met Ser Ala Ser Arg Ile Arg Ala Lys Cys Phe Arg Leu Gly Gln Arg
1   5   10   15

Cys His Thr Arg Phe Tyr Asp Val Leu Lys Lys Asp Ile Asp Asn Val
            20   25   30

Arg Arg Gly Phe Ala Asp Ala Phe Asn Pro Arg Leu Ala Lys Leu Leu
        35   40   45

Ser Pro Leu Ser His Val Asp Val Gln Arg Ala Val Arg Ile Ser Met
    50   55   60

Ser Phe Glu Val Asn Leu Gly Arg Arg Arg Pro Asp Cys Val Cys Ile
65   70   75   80

Ile Gln Thr Glu Ser Ser Gly Ala Gly Lys Thr Val Cys Phe Ile Val
                85   90   95

Glu Leu Lys Ser Cys Arg Phe Ser Ala Asn Ile His Thr Pro Thr Lys
            100   105   110

Tyr His Gln Phe Cys Glu Gly Met Arg Gln Leu Arg Asp Thr Met Ala
        115   120   125

Leu Ile Lys Glu Thr Thr Pro Thr Gly Ser Asp Glu Ile Met Val Thr
    130   135   140

Pro Leu Leu Val Phe Val Ser Gln Arg Gly Leu Asn Leu Leu Gln Val

401

Thr Arg Leu Pro Pro Lys Val Ile His Gly Asn Leu Val Met Leu Ala
                165   170   175

Ser His Leu Glu Asn Val Ala Glu Tyr Thr Pro Pro Ile Arg Ser Val
                180   185   190

Arg Glu Arg Arg Arg Leu Cys Lys Lys Lys Ile His Val Cys Ser Leu
                195   200   205

Ala Lys Lys Arg Ala Lys Ser Cys His Arg Ser Ala Leu Thr Lys Phe
                210   215   220

Glu Glu Asn Ala Ala Cys Gly Val Asp Leu Pro Leu Arg Arg Pro Ser
225   230   235   240

Leu Gly Ala Cys Gly Gly Ile Leu Gln Ser Ile Thr Gly Met Phe Ser
                245   250   255

His Gly

<210> 62
<211> 579
<212> PRT
<213> Varicella zoster

<400> 62

Met Thr Ala Arg Tyr Gly Phe Gly Ser Ile Ser Phe Pro Asn Lys Cys
1   5   10   15

Gly Ile Phe Leu Ser Thr Thr Lys Asn Phe Ile Ala Pro Asn Phe Pro
                20   25   30

Ile His Tyr Trp Thr Ala Pro Ala Phe Glu Leu Arg Gly Arg Met Asn
                35   40   45

Pro Asp Leu Glu Lys Asn Thr Leu Thr Leu Lys Asn Ala Ala Ala Val
                50   55   60

Ala Ala Leu Asp Asn Leu Arg Gly Glu Thr Ile Thr Leu Pro Thr Glu
65   70   75   80

402

```
Ile Asp Arg Arg Leu Lys Pro Leu Glu Glu Gln Leu Thr Arg Met Ala
              85                90                    95

Lys Val Leu Asp Ser Leu Glu Thr Ala Ala Ala Glu Ala Glu Glu Ala
             100               105               110

Asp Ala Gln Ser Glu Glu Cys Thr Arg Thr Glu Ile Ile Arg Asn Glu
             115               120               125

Ser Ile His Pro Glu Val Gln Ile Ala Lys Asn Asp Ala Pro Leu Gln
    130                   135               140

Tyr Asp Thr Asn Phe Gln Val Asp Phe Ile Thr Leu Val Tyr Leu Gly
145                   150               155                   160

Arg Ala Arg Gly Asn Asn Ser Pro Gly Ile Val Phe Gly Pro Trp Tyr
             165               170                   175

Arg Thr Leu Gln Glu Arg Leu Val Leu Asp Arg Pro Val Ala Ala Arg
             180               185                   190

Gly Val Asp Cys Lys Asp Gly Arg Ile Ser Arg Thr Phe Met Asn Thr
             195               200               205

Thr Val Thr Cys Leu Gln Ser Ala Gly Arg Met Tyr Val Gly Asp Arg
    210                   215               220

Ala Tyr Ser Ala Phe Glu Cys Ala Val Leu Cys Leu Tyr Leu Met Tyr
225                   230               235                   240

Arg Thr Ser Asn Ser Val His Glu Pro Gln Val Ser Ser Phe Gly Asn
                  245               250               255

Leu Ile Glu His Leu Pro Glu Tyr Thr Glu Thr Phe Val Asn Tyr Met
             260               265               270

Thr Thr His Glu Asn Lys Asn Ser Tyr Gln Phe Cys Tyr Asp Arg Leu
             275               280               285

Pro Arg Asp Gln Phe His Ala Arg Gly Gly Arg Tyr Asp Gln Gly Ala
    290                   295               300
```

```
Leu Thr Ser His Ser Val Met Asp Ala Leu Ile Arg Leu Gln Val Leu
305             310             315             320


Pro Pro Ala Pro Gly Gln Phe Asn Pro Gly Val Asn Asp Ile Ile Asp
            325             330             335


Arg Asn His Thr Ala Tyr Val Asp Lys Ile Gln Gln Ala Ala Ala Ala
            340             345             350


Tyr Leu Glu Arg Ala Gln Asn Val Phe Leu Met Glu Asp Gln Thr Leu
        355             360             365


Leu Arg Leu Thr Ile Asp Thr Ile Thr Ala Leu Leu Leu Leu Arg Arg
        370             375             380


Leu Leu Trp Asn Gly Asn Val Tyr Gly Asp Lys Leu Lys Asn Asn Phe
385             390             395             400


Gln Leu Gly Leu Ile Val Ser Glu Ala Thr Gly Thr Pro Thr Asn Asn
            405             410             415


Val Ile Leu Arg Gly Ala Thr Gly Phe Asp Gly Lys Phe Lys Ser Gly
        420             425             430


Asn Asn Asn Phe Gln Phe Leu Cys Glu Arg Tyr Ile Ala Pro Leu Tyr
        435             440             445


Thr Leu Asn Arg Thr Thr Glu Leu Thr Glu Met Phe Pro Gly Leu Val
    450             455             460


Ala Leu Cys Leu Asp Ala His Thr Gln Leu Ser Arg Gly Ser Leu Gly
465             470             475             480


Arg Thr Val Ile Asp Ile Ser Ser Gly Gln Tyr Gln Asp Arg Leu Ile
            485             490             495


Ser Leu Ile Ala Leu Glu Leu Glu His Arg Arg Gln Asn Val Thr Ser
        500             505             510


Leu Pro Ile Ala Ala Val Val Ser Ile His Asp Ser Val Met Leu Gln
        515             520             525


Tyr Glu Arg Gly Leu Gly Met Leu Met His Gln Pro Arg Val Arg Ala
```

404

Ala Leu Glu Glu Ser Arg Arg Leu Ala Gln Phe Asn Val Asn Ser Asp
545   550   555   560

Tyr Asp Leu Leu Tyr Phe Val Cys Leu Gly Val Ile Pro Gln Phe Ala
                 565   570   575

Ser Thr Pro

<210> 63
<211> 605
<212> PRT
<213> Varicella zoster

<400> 63

Met Ala Ala Glu Ala Asp Glu Glu Asn Cys Glu Ala Leu Tyr Val Ala
1   5   10   15

Gly Tyr Leu Ala Leu Tyr Ser Lys Asp Glu Gly Glu Leu Asn Ile Thr
             20   25   30

Pro Glu Ile Val Arg Ser Ala Leu Pro Pro Thr Ser Lys Ile Pro Ile
         35   40   45

Asn Ile Asp His Arg Lys Asp Cys Val Val Gly Glu Val Ile Ala Ile
     50   55   60

Ile Glu Asp Ile Arg Gly Pro Phe Phe Leu Gly Ile Val Arg Cys Pro
65   70   75   80

Gln Leu His Ala Val Leu Phe Glu Ala Ala His Ser Asn Phe Phe Gly
                 85   90   95

Asn Arg Asp Ser Val Leu Ser Pro Leu Glu Arg Ala Leu Tyr Leu Val
             100   105   110

Thr Asn Tyr Leu Pro Ser Val Ser Leu Ser Ser Lys Arg Leu Ser Pro
         115   120   125

Asn Glu Ile Pro Asp Gly Asn Phe Phe Thr His Val Ala Leu Cys Val
     130   135   140

405

Val Gly Arg Arg Val Gly Thr Val Val Asn Tyr Asp Cys Thr Pro Glu
145   150   155   160

Ser Ser Ile Glu Pro Phe Arg Val Leu Ser Met Glu Ser Lys Ala Arg
                165   170   175

Leu Leu Ser Leu Val Lys Asp Tyr Ala Gly Leu Asn Lys Val Trp Lys
                180   185   190

Val Ser Glu Asp Lys Leu Ala Lys Val Leu Leu Ser Thr Ala Val Asn
                195   200   205

Asn Met Leu Leu Arg Asp Arg Trp Asp Val Val Ala Lys Arg Arg Arg
                210   215   220

Glu Ala Gly Ile Met Gly His Val Tyr Leu Gln Ala Ser Thr Gly Tyr
225   230   235   240

Gly Leu Ala Arg Ile Thr Asn Val Asn Gly Val Glu Ser Lys Leu Pro
                245   250   255

Asn Ala Gly Val Ile Asn Ala Thr Phe His Pro Gly Gly Pro Ile Tyr
                260   265   270

Asp Leu Ala Leu Gly Val Gly Glu Ser Asn Glu Asp Cys Glu Lys Thr
                275   280   285

Val Pro His Leu Lys Val Thr Gln Leu Cys Arg Asn Asp Ser Asp Met
                290   295   300

Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro Ser
305   310   315   320

Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr Tyr
                325   330   335

Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile Gly
                340   345   350

Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro His
                355   360   365

406

```
Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro Gly
    370                 375                 380

His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn Arg
385                 390                 395                 400

Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu Arg
                405                 410                 415

Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr Asp
                420                 425                 430

Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg Glu
                435                 440                 445

Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe Pro
                450                 455                 460

Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg Arg
465                 470                 475                 480

Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser Asn
                485                 490                 495

Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln Glu
                500                 505                 510

Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser His
                515                 520                 525

His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile Leu
    530                 535                 540

Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn Thr
545                 550                 555                 560

Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala Val
                565                 570                 575

Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp Asp
                580                 585                 590

Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
```

407

<210> 64
<211> 1194
<212> PRT
<213> Varicella zoster

<400> 64

Met Ala Ile Arg Thr Gly Phe Cys Asn Pro Phe Leu Thr Gln Ala Ser
1   5   10   15

Gly Ile Lys Tyr Asn Pro Arg Thr Gly Arg Gly Ser Asn Arg Glu Phe
            20   25   30

Leu His Ser Tyr Lys Thr Thr Met Ser Ser Phe Gln Phe Leu Ala Pro
        35   40   45

Lys Cys Leu Asp Glu Asp Val Pro Met Glu Glu Arg Lys Gly Val His
    50   55   60

Val Gly Thr Leu Ser Arg Pro Pro Lys Val Tyr Cys Asn Gly Lys Glu
65   70   75   80

Val Pro Ile Leu Asp Phe Arg Cys Ser Ser Pro Trp Pro Arg Arg Val
                85   90   95

Asn Ile Trp Gly Glu Ile Asp Phe Arg Gly Asp Lys Phe Asp Pro Arg
            100   105   110

Phe Asn Thr Phe His Val Tyr Asp Ile Val Glu Thr Thr Glu Ala Ala
            115   120   125

Ser Asn Gly Asp Val Ser Arg Phe Ala Thr Ala Thr Arg Pro Leu Gly
    130   135   140

Thr Val Ile Thr Leu Leu Gly Met Ser Arg Cys Gly Lys Arg Val Ala
145   150   155   160

Val His Val Tyr Gly Ile Cys Gln Tyr Phe Tyr Ile Asn Lys Ala Glu
                165   170   175

Val Asp Thr Ala Cys Gly Ile Arg Ser Gly Ser Glu Leu Ser Val Leu
            180   185   190

Leu Ala Glu Cys Leu Arg Ser Ser Met Ile Thr Gln Asn Asp Ala Thr
        195   200   205

Leu Asn Gly Asp Lys Asn Ala Phe His Gly Thr Ser Phe Lys Ser Ala
        210   215   220

Ser Pro Glu Ser Phe Arg Val Glu Val Ile Glu Arg Thr Asp Val Tyr
225   230   235   240

Tyr Tyr Asp Thr Gln Pro Cys Ala Phe Tyr Arg Val Tyr Ser Pro Ser
                245   250   255

Ser Lys Phe Thr Asn Tyr Leu Cys Asp Asn Phe His Pro Glu Leu Lys
                260   265   270

Lys Tyr Glu Gly Arg Val Asp Ala Thr Thr Arg Phe Leu Met Asp Asn
                275   280   285

Pro Gly Phe Val Ser Phe Gly Trp Tyr Gln Leu Lys Pro Gly Val Asp
        290   295   300

Gly Glu Arg Val Arg Val Arg Pro Ala Ser Arg Gln Leu Thr Leu Ser
305   310   315   320

Asp Val Glu Ile Asp Cys Met Ser Asp Asn Leu Gln Ala Ile Pro Asn
                325   330   335

Asp Asp Ser Trp Pro Asp Tyr Lys Leu Leu Cys Phe Asp Ile Glu Cys
                340   345   350

Lys Ser Gly Gly Ser Asn Glu Leu Ala Phe Pro Asp Ala Thr His Leu
        355   360   365

Glu Asp Leu Val Ile Gln Ile Ser Cys Leu Leu Tyr Ser Ile Pro Arg
        370   375   380

Gln Ser Leu Glu His Ile Leu Leu Phe Ser Leu Gly Ser Cys Asp Leu
385   390   395   400

Pro Gln Arg Tyr Val Gln Glu Met Lys Asp Ala Gly Leu Pro Glu Pro
                405   410   415

409

```
Thr Val Leu Glu Phe Asp Ser Glu Phe Glu Leu Leu Ile Ala Phe Met
        420                 425                 430

Thr Leu Val Lys Gln Tyr Ala Pro Glu Phe Ala Thr Gly Tyr Asn Ile
        435                 440                 445

Val Asn Phe Asp Trp Ala Phe Ile Met Glu Lys Leu Asn Ser Ile Tyr
        450                 455                 460

Ser Leu Lys Leu Asp Gly Tyr Gly Ser Ile Asn Arg Gly Gly Leu Phe
465                 470                 475                 480

Lys Ile Trp Asp Val Gly Lys Ser Gly Phe Gln Arg Arg Ser Lys Val
                485                 490                 495

Lys Ile Asn Gly Leu Ile Ser Leu Asp Met Tyr Ala Ile Ala Thr Glu
                500                 505                 510

Lys Leu Lys Leu Ser Ser Tyr Lys Leu Asp Ser Val Ala Arg Glu Ala
        515                 520                 525

Leu Asn Glu Ser Lys Arg Asp Leu Pro Tyr Lys Asp Ile Pro Gly Tyr
        530                 535                 540

Tyr Ala Ser Gly Pro Asn Thr Arg Gly Ile Ile Gly Glu Tyr Cys Ile
545                 550                 555                 560

Gln Asp Ser Ala Leu Val Gly Lys Leu Phe Phe Lys Tyr Leu Pro His
                565                 570                 575

Leu Glu Leu Ser Ala Val Ala Arg Leu Ala Arg Ile Thr Leu Thr Lys
        580                 585                 590

Ala Ile Tyr Asp Gly Gln Gln Val Arg Ile Tyr Thr Cys Leu Leu Gly
        595                 600                 605

Leu Ala Ser Ser Arg Gly Phe Ile Leu Pro Asp Gly Gly Tyr Pro Ala
        610                 615                 620

Thr Phe Glu Tyr Lys Asp Val Ile Pro Asp Val Gly Asp Val Glu Glu
625                 630                 635                 640

Glu Met Asp Glu Asp Glu Ser Val Ser Pro Thr Gly Thr Ser Ser Gly
```

410

Arg Asn Val Gly Tyr Lys Gly Ala Arg Val Phe Asp Pro Asp Thr Gly
     660   665   670

Phe Tyr Ile Asp Pro Val Val Val Leu Asp Phe Ala Ser Leu Tyr Pro
     675   680   685

Ser Ile Ile Gln Ala His Asn Leu Cys Phe Thr Thr Leu Thr Leu Asn
    690   695   700

Phe Glu Thr Val Lys Arg Leu Asn Pro Ser Asp Tyr Ala Thr Phe Thr
705   710   715   720

Val Gly Gly Lys Arg Leu Phe Phe Val Arg Ser Asn Val Arg Glu Ser
     725   730   735

Leu Leu Gly Val Leu Leu Lys Asp Trp Leu Ala Met Arg Lys Ala Ile
     740   745   750

Arg Ala Arg Ile Pro Gly Ser Ser Ser Asp Glu Ala Val Leu Leu Asp
     755   760   765

Lys Gln Gln Ala Ala Ile Lys Val Val Cys Asn Ser Val Tyr Gly Phe
     770   775   780

Thr Gly Val Ala Gln Gly Phe Leu Pro Cys Leu Tyr Val Ala Ala Thr
785   790   795   800

Val Thr Thr Ile Gly Arg Gln Met Leu Leu Ser Thr Arg Asp Tyr Ile
     805   810   815

His Asn Asn Trp Ala Ala Phe Glu Arg Phe Ile Thr Ala Phe Pro Asp
     820   825   830

Ile Glu Ser Ser Val Leu Ser Gln Lys Ala Tyr Glu Val Lys Val Ile
     835   840   845

Tyr Gly Asp Thr Asp Ser Val Phe Ile Arg Phe Lys Gly Val Ser Val
     850   855   860

Glu Gly Ile Ala Lys Ile Gly Glu Lys Met Ala His Ile Ile Ser Thr
865   870   875   880

```
Ala Leu Phe Cys Pro Pro Ile Lys Leu Glu Cys Glu Lys Thr Phe Ile
            885                 890                     895

Lys Leu Leu Leu Ile Thr Lys Lys Lys Tyr Ile Gly Val Ile Tyr Gly
            900                 905                 910

Gly Lys Val Leu Met Lys Gly Val Asp Leu Val Arg Lys Asn Asn Cys
        915                 920                 925

Gln Phe Ile Asn Asp Tyr Ala Arg Lys Leu Val Glu Leu Leu Leu Tyr
    930                 935                 940

Asp Asp Thr Val Ser Arg Ala Ala Ala Glu Ala Ser Cys Val Ser Ile
945                 950                 955                 960

Ala Glu Trp Asn Arg Arg Ala Met Pro Ser Gly Met Ala Gly Phe Gly
                965                 970                     975

Arg Ile Ile Ala Asp Ala His Arg Gln Ile Thr Ser Pro Lys Leu Asp
            980                 985                     990

Ile Asn Lys Phe Val Met Thr Ala  Glu Leu Ser Arg Pro  Pro Ser Ala
        995                 1000                1005

Tyr Ile  Asn Arg Arg Leu Ala  His Leu Thr Val Tyr  Tyr Lys Leu
    1010                1015                1020

Val Met  Arg Gln Gly Gln Ile  Pro Asn Val Arg Glu  Arg Ile Pro
    1025                1030                1035

Tyr Val  Ile Val Ala Pro Thr  Asp Glu Val Glu Ala  Asp Ala Lys
    1040                1045                1050

Ser Val  Ala Leu Leu Arg Gly  Asp Pro Leu Gln Asn  Thr Ala Gly
    1055                1060                1065

Lys Arg  Cys Gly Glu Ala Lys  Arg Lys Leu Ile Ile  Ser Asp Leu
    1070                1075                1080

Ala Glu  Asp Pro Ile His Val  Thr Ser His Gly Leu  Ser Leu Asn
    1085                1090                1095
```

412

Ile Asp Tyr Tyr Phe Ser His Leu Ile Gly Thr Ala Ser Val Thr
    1100   1105   1110

Phe Lys Ala Leu Phe Gly Asn Asp Thr Lys Leu Thr Glu Arg Leu
    1115   1120   1125

Leu Lys Arg Phe Ile Pro Glu Thr Arg Val Val Asn Val Lys Met
    1130   1135   1140

Leu Asn Arg Leu Gln Ala Ala Gly Phe Val Cys Ile His Ala Pro
    1145   1150   1155

Cys Trp Asp Asn Lys Met Asn Thr Glu Ala Glu Ile Thr Glu Glu
    1160   1165   1170

Glu Gln Ser His Gln Ile Met Arg Arg Val Phe Cys Ile Pro Lys
    1175   1180   1185

Ala Ile Leu His Gln Ser
    1190

<210> 65
<211> 156
<212> PRT
<213> Varicella zoster

<400> 65

Met Tyr Glu Ser Glu Asn Ala Ser Glu His His Pro Glu Leu Glu Asp
1   5   10   15

Val Phe Ser Glu Asn Thr Gly Asp Ser Asn Pro Ser Met Gly Ser Ser
            20   25   30

Asp Ser Thr Arg Ser Ile Ser Gly Met Arg Ala Arg Asp Leu Ile Thr
        35   40   45

Asp Thr Asp Val Asn Leu Leu Asn Ile Asp Ala Leu Glu Ser Lys Tyr
    50   55   60

Phe Pro Ala Asp Ser Thr Phe Thr Leu Ser Val Trp Phe Glu Asn Leu
65   70   75   80

Ile Pro Pro Glu Ile Glu Ala Ile Leu Pro Thr Thr Asp Ala Gln Leu

413

Asn Tyr Ile Ser Phe Thr Ser Arg Leu Ala Ser Val Leu Lys His Lys
            100   105   110

Glu Ser Asn Asp Ser Glu Lys Ser Ala Tyr Val Val Pro Cys Glu His
            115   120   125

Ser Ala Ser Val Thr Arg Arg Arg Glu Arg Phe Ala Gly Val Met Ala
       130   135   140

Lys Phe Leu Asp Leu His Glu Ile Leu Lys Asp Ala
145   150   155

<210>   66
<211>   269
<212>   PRT
<213>   Varicella zoster

<400>   66

Met Ser Arg Arg Thr Tyr Val Arg Ser Glu Arg Arg Arg Gly Cys Gly
1   5   10   15

Asp Asn Leu Leu Gln Arg Ile Arg Leu Val Val Pro Ser Ala Leu Gln
            20   25   30

Cys Cys Asp Gly Asp Leu Pro Ile Phe Asp Pro Gln Arg Pro Pro Ala
       35   40   45

Arg Cys Val Phe Gln Phe Asn Gly Glu Asp Asn Val Ser Glu Ala Phe
       50   55   60

Pro Val Glu Tyr Ile Met Arg Leu Met Ala Asn Trp Ala Gln Val Asp
65   70   75   80

Cys Asp Pro Tyr Ile Lys Ile Gln Asn Thr Gly Val Ser Val Leu Phe
                85   90   95

Gln Gly Phe Phe Phe Arg Pro Thr Asn Ala Pro Val Ala Glu Val Ser
            100   105   110

Ile Asp Ser Asn Asn Val Ile Leu Ser Ser Thr Leu Ser Thr Gly Ile
            115   120   125

Asn Leu Ser Ala Leu Glu Ser Ile Lys Arg Gly Gly Gly Ile Asp Arg
    130   135   140

Arg Pro Leu Gln Ala Leu Met Trp Val Asn Cys Phe Val Arg Met Pro
145   150   155   160

Tyr Val Gln Leu Ser Phe Arg Phe Met Gly Pro Glu Asp Pro Ser Arg
                165   170   175

Thr Ile Lys Leu Met Ala Arg Ala Thr Asp Ala Tyr Met Tyr Lys Glu
                180   185   190

Thr Gly Asn Asn Leu Asp Glu Tyr Ile Arg Trp Arg Pro Ser Phe Arg
                195   200   205

Ser Pro Pro Glu Asn Gly Ser Pro Asn Thr Ser Val Gln Met Gln Ser
    210   215   220

Asp Ile Lys Pro Ala Leu Pro Asp Thr Gln Thr Thr Arg Val Trp Lys
225   230   235   240

Leu Ala Leu Pro Val Ala Asn Val Thr Tyr Ala Leu Phe Ile Val Ile
                245   250   255

Val Leu Val Val Val Leu Gly Ala Val Leu Phe Trp Lys
                260   265

<210>   67
<211>   235
<212>   PRT
<213>   Varicella zoster

<400>   67

Met Thr Gln Pro Ala Ser Ser Arg Val Val Phe Asp Pro Ser Asn Pro
1   5   10   15

Thr Thr Phe Ser Val Glu Ala Ile Ala Ala Tyr Thr Pro Val Ala Leu
                20   25   30

Ile Arg Leu Leu Asn Ala Ser Gly Pro Leu Gln Pro Gly His Arg Val
        35   40   45

Asp Ile Ala Asp Ala Arg Ser Ile Tyr Thr Val Gly Ala Ala Ala Ser

415

```
                    50                      55                      60


       Ala Ala Arg Ala Arg Ala Asn His Asn Ala Asn Thr Ile Arg Arg Thr
       65              70                  75                      80


       Ala Met Phe Ala Glu Thr Asp Pro Met Thr Trp Leu Arg Pro Thr Val
                       85                  90                  95


       Gly Leu Lys Arg Thr Phe Asn Pro Arg Ile Ile Arg Pro Gln Pro Pro
                   100                 105                 110


       Asn Pro Ser Met Ser Leu Gly Ile Ser Gly Pro Thr Ile Leu Pro Gln
                   115                 120                 125


       Lys Thr Gln Ser Ala Asp Gln Ser Ala Leu Gln Gln Pro Ala Ala Leu
                   130                 135                 140


       Ala Phe Ser Gly Ser Ser Pro Gln His Pro Pro Pro Gln Thr Thr Ser
       145                 150                 155                 160


       Ala Ser Val Gly Gln Gln Gln His Val Val Ser Gly Ser Ser Gly Gln
                       165                 170                 175


       Gln Pro Gln Gln Gly Ala Gln Ser Ser Thr Val Gln Pro Thr Thr Gly
                   180                 185                 190


       Ser Pro Pro Ala Ala Gln Gly Val Pro Gln Ser Thr Pro Pro Pro Thr
                   195                 200                 205


       Gln Asn Thr Pro Gln Gly Gly Lys Gly Gln Thr Leu Ser His Thr Gly
                   210                 215                 220


       Gln Ser Gly Asn Ala Ser Arg Ser Arg Arg Val
       225                 230                 235


       <210>  68
       <211>  483
       <212>  PRT
       <213>  Varicella zoster

       <400>  68

       Met Gly Ser Gln Pro Thr Asn Ser His Phe Thr Leu Asn Glu Gln Thr
       1               5                   10                  15
```

416

```
Leu Cys Gly Thr Asn Ile Ser Leu Leu Gly Asn Asn Arg Phe Ile Gln
        20              25                  30


Ile Gly Asn Gly Leu His Met Thr Tyr Ala Pro Gly Phe Phe Gly Asn
        35              40                  45


Trp Ser Arg Asp Leu Thr Ile Gly Pro Arg Phe Gly Gly Leu Asn Lys
    50              55                  60


Gln Pro Ile His Val Pro Pro Lys Arg Thr Glu Thr Ala Ser Ile Gln
65              70                  75                  80


Val Thr Pro Arg Ser Ile Val Ile Asn Arg Met Asn Asn Ile Gln Ile
            85                  90                  95


Asn Pro Thr Ser Ile Gly Asn Pro Gln Val Thr Ile Arg Leu Pro Leu
            100                 105                 110


Asn Asn Phe Lys Ser Thr Thr Gln Leu Ile Gln Gln Val Ser Leu Thr
            115                 120                 125


Asp Phe Phe Arg Pro Asp Ile Glu His Ala Gly Ser Ile Val Leu Ile
    130                 135                 140


Leu Arg His Pro Ser Asp Met Ile Gly Glu Ala Asn Thr Leu Thr Gln
145                 150                 155                 160


Ala Gly Arg Asp Pro Asp Val Leu Leu Glu Gly Leu Arg Asn Leu Phe
            165                 170                 175


Asn Ala Cys Thr Ala Pro Trp Thr Val Gly Glu Gly Gly Gly Leu Arg
            180                 185                 190


Ala Tyr Val Thr Ser Leu Ser Phe Ile Ala Ala Cys Arg Ala Glu Glu
            195                 200                 205


Tyr Thr Asp Lys Gln Ala Ala Asp Ala Asn Arg Thr Ala Ile Val Ser
    210                 215                 220


Ala Tyr Gly Cys Ser Arg Met Glu Thr Arg Leu Ile Arg Phe Ser Glu
225                 230                 235                 240
```

417

Cys Leu Arg Ala Met Val Gln Cys His Val Phe Pro His Arg Phe Ile
                245   250   255

Ser Phe Phe Gly Ser Leu Leu Glu Tyr Thr Ile Gln Asp Asn Leu Cys
                260   265   270

Asn Ile Thr Ala Val Ala Lys Gly Pro Gln Glu Ala Ala Arg Thr Asp
            275   280   285

Lys Thr Ser Thr Arg Arg Val Thr Ala Asn Ile Pro Ala Cys Val Phe
            290   295   300

Trp Asp Val Asp Lys Asp Leu His Leu Ser Ala Asp Gly Leu Lys His
305   310   315   320

Val Phe Leu Val Phe Val Tyr Thr Gln Arg Arg Gln Arg Glu Gly Val
                325   330   335

Arg Leu His Leu Ala Leu Ser Gln Leu Asn Glu Gln Cys Phe Gly Arg
            340   345   350

Gly Ile Gly Phe Leu Leu Gly Arg Ile Arg Ala Glu Asn Ala Ala Trp
            355   360   365

Gly Thr Glu Gly Val Ala Asn Thr His Gln Pro Tyr Asn Thr Arg Ala
            370   375   380

Leu Pro Leu Val Gln Leu Ser Asn Asp Pro Thr Ser Pro Arg Cys Ser
385   390   395   400

Ile Gly Glu Ile Thr Gly Val Asn Trp Asn Leu Ala Arg Gln Arg Leu
                405   410   415

Tyr Gln Trp Thr Gly Asp Phe Arg Gly Leu Pro Thr Gln Leu Ser Cys
                420   425   430

Met Tyr Ala Ala Tyr Thr Leu Ile Gly Thr Ile Pro Ser Glu Ser Val
            435   440   445

Arg Tyr Thr Arg Arg Met Glu Arg Phe Gly Gly Tyr Asn Val Pro Thr
            450   455   460

Ile Trp Leu Glu Gly Val Val Trp Gly Gly Thr Asn Thr Trp Asn Glu

418

Cys Tyr Tyr

<210> 69
<211> 775
<212> PRT
<213> Varicella zoster

<400> 69

Met Glu Phe Lys Arg Ile Phe Asn Thr Val His Asp Ile Ile Asn Arg
1   5   10   15

Leu Cys Gln His Gly Tyr Lys Glu Tyr Ile Ile Pro Pro Glu Ser Thr
            20   25   30

Thr Pro Val Glu Leu Met Glu Tyr Ile Ser Thr Ile Val Ser Lys Leu
        35   40   45

Lys Ala Val Thr Arg Gln Asp Glu Arg Val Tyr Arg Cys Cys Gly Glu
    50   55   60

Leu Ile His Cys Arg Ile Asn Leu Arg Ser Val Ser Met Glu Thr Trp
65   70   75   80

Leu Thr Ser Pro Ile Leu Cys Leu Thr Pro Arg Val Arg Gln Ala Ile
            85   90   95

Glu Gly Arg Arg Asp Glu Ile Arg Arg Ala Ile Leu Glu Pro Phe Leu
            100   105   110

Lys Asp Gln Tyr Pro Ala Leu Ala Thr Leu Gly Leu Gln Ser Ala Leu
        115   120   125

Lys Tyr Glu Asp Phe Tyr Leu Thr Lys Leu Glu Glu Gly Lys Leu Glu
    130   135   140

Ser Leu Cys Gln Phe Phe Leu Arg Leu Ala Ala Thr Val Thr Thr Glu
145   150   155   160

Ile Val Asn Leu Pro Lys Ile Ala Thr Leu Ile Pro Gly Ile Asn Asp
                165   170   175

419

Gly Tyr Thr Trp Thr Asp Val Cys Arg Val Phe Phe Thr Ala Leu Ala
            180   185   190

Cys Gln Lys Ile Val Pro Ala Thr Pro Val Met Met Phe Leu Gly Arg
            195   200   205

Glu Thr Gly Ala Thr Ala Ser Cys Tyr Leu Met Asp Pro Glu Ser Ile
    210   215   220

Thr Val Gly Arg Ala Val Arg Ala Ile Thr Gly Asp Val Gly Thr Val
225   230   235   240

Leu Gln Ser Arg Gly Gly Val Gly Ile Ser Leu Gln Ser Leu Asn Leu
            245   250   255

Ile Pro Thr Glu Asn Gln Thr Lys Gly Leu Leu Ala Val Leu Lys Leu
            260   265   270

Leu Asp Cys Met Val Met Ala Ile Asn Ser Asp Cys Glu Arg Pro Thr
            275   280   285

Gly Val Cys Val Tyr Ile Glu Pro Trp His Val Asp Leu Gln Thr Val
    290   295   300

Leu Ala Thr Arg Gly Met Leu Val Arg Asp Glu Ile Phe Arg Cys Asp
305   310   315   320

Asn Ile Phe Cys Cys Leu Trp Thr Pro Asp Leu Phe Phe Glu Arg Tyr
            325   330   335

Leu Ser Tyr Leu Lys Gly Ala Ser Asn Val Gln Trp Thr Leu Phe Asp
            340   345   350

Asn Arg Ala Asp Ile Leu Arg Thr Leu His Gly Glu Ala Phe Thr Ser
            355   360   365

Thr Tyr Leu Arg Leu Glu Arg Glu Gly Leu Gly Val Ser Ser Val Pro
            370   375   380

Ile Gln Asp Ile Ala Phe Thr Ile Ile Arg Ser Ala Ala Val Thr Gly
385   390   395   400

420

Ser Pro Phe Leu Met Phe Lys Asp Ala Cys Asn Arg Asn Tyr His Met
            405   410   415

Asn Thr Gln Gly Asn Ala Ile Thr Gly Ser Asn Leu Cys Thr Glu Ile
            420   425   430

Val Gln Lys Ala Asp Ala His Gln His Gly Val Cys Asn Leu Ala Ser
            435   440   445

Ile Asn Leu Thr Thr Cys Leu Ser Lys Gly Pro Val Ser Phe Asn Leu
            450   455   460

Asn Asp Leu Gln Leu Thr Ala Arg Thr Thr Val Ile Phe Leu Asn Gly
465   470   475   480

Val Leu Ala Ala Gly Asn Phe Pro Cys Lys Lys Ser Cys Lys Gly Val
            485   490   495

Lys Asn Asn Arg Ser Leu Gly Ile Gly Ile Gln Gly Leu His Thr Thr
            500   505   510

Cys Leu Arg Leu Gly Phe Asp Leu Thr Ser Gln Pro Ala Arg Arg Leu
            515   520   525

Asn Val Gln Ile Ala Glu Leu Met Leu Tyr Glu Thr Met Lys Thr Ser
            530   535   540

Met Glu Met Cys Lys Ile Gly Gly Leu Ala Pro Phe Lys Gly Phe Thr
545   550   555   560

Glu Ser Lys Tyr Ala Lys Gly Trp Leu His Gln Asp Gly Phe Ser Thr
            565   570   575

Ile Ser Tyr Leu Asp Leu Pro Trp Cys Thr Leu Arg Asp Asp Ile Cys
            580   585   590

Ala Tyr Gly Leu Tyr Asn Ser Gln Phe Leu Ala Leu Met Pro Thr Val
            595   600   605

Ser Ser Ala Gln Val Thr Glu Cys Ser Glu Gly Phe Ser Pro Ile Tyr
            610   615   620

Asn Asn Met Phe Ser Lys Val Thr Thr Ser Gly Glu Leu Leu Arg Pro

421

Asn Leu Asp Leu Met Asp Glu Leu Arg Asp Met Tyr Ser Cys Glu Glu
            645   650   655

Lys Arg Leu Glu Val Ile Asn Ile Leu Glu Lys Asn Gln Trp Ser Val
            660   665   670

Ile Arg Ser Phe Gly Cys Leu Ser Asn Ser His Pro Leu Leu Lys Tyr
            675   680   685

Lys Thr Ala Phe Glu Tyr Glu Gln Glu Asp Leu Val Asp Met Cys Ala
            690   695   700

Glu Arg Ala Pro Phe Ile Asp Gln Ser Gln Ser Met Thr Leu Phe Ile
705   710   715   720

Glu Glu Arg Pro Asp Gly Thr Ile Pro Ala Ser Lys Ile Met Asn Leu
            725   730   735

Leu Ile Arg Ala Tyr Lys Ala Gly Leu Lys Thr Gly Met Tyr Tyr Cys
            740   745   750

Lys Ile Arg Lys Ala Thr Asn Ser Gly Leu Phe Ala Gly Gly Glu Leu
            755   760   765

Thr Cys Thr Ser Cys Ala Leu
    770   775

<210>   70
<211>   306
<212>   PRT
<213>   Varicella zoster

<400>   70

Met Asp Gln Lys Asp Cys Ser His Phe Phe Tyr Arg Pro Glu Cys Pro
1   5   10   15

Asp Ile Asn Asn Leu Arg Ala Leu Ser Ile Ser Asn Arg Trp Leu Glu
            20   25   30

Ser Asp Phe Ile Ile Glu Asp Asp Tyr Gln Tyr Leu Asp Cys Leu Thr
            35   40   45

```
Glu Asp Glu Leu Ile Phe Tyr Arg Phe Ile Phe Thr Phe Leu Ser Ala
    50                  55                  60

Ala Asp Asp Leu Val Asn Val Asn Leu Gly Ser Leu Thr Gln Leu Phe
65                  70                  75                  80

Ser Gln Lys Asp Ile His His Tyr Tyr Ile Glu Gln Glu Cys Ile Glu
                85                  90                  95

Val Val His Ala Arg Val Tyr Ser Gln Ile Gln Leu Met Leu Phe Arg
            100                 105                 110

Gly Asp Glu Ser Leu Arg Val Gln Tyr Val Asn Val Thr Ile Asn Asn
            115                 120                 125

Pro Ser Ile Gln Gln Lys Val Gln Trp Leu Glu Glu Lys Val Arg Asp
    130                 135                 140

Asn Pro Ser Val Ala Glu Lys Tyr Ile Leu Met Ile Leu Ile Glu Gly
145                 150                 155                 160

Ile Phe Phe Val Ser Ser Phe Ala Ala Ile Ala Tyr Leu Arg Asn Asn
            165                 170                 175

Gly Leu Phe Val Val Thr Cys Gln Phe Asn Asp Leu Ile Ser Arg Asp
            180                 185                 190

Glu Ala Ile His Thr Ser Ala Ser Cys Cys Ile Tyr Asn Asn Tyr Val
    195                 200                 205

Pro Glu Lys Pro Ala Ile Thr Arg Ile His Gln Leu Phe Ser Glu Ala
    210                 215                 220

Val Glu Ile Glu Cys Ala Phe Leu Lys Ser His Ala Pro Lys Thr Arg
225                 230                 235                 240

Leu Val Asn Val Asp Ala Ile Thr Gln Tyr Val Lys Phe Ser Ala Asp
            245                 250                 255

Arg Leu Leu Ser Ala Ile Asn Val Pro Lys Leu Phe Asn Thr Pro Pro
            260                 265                 270
```

423

Pro Asp Ser Asp Phe Pro Leu Ala Phe Met Ile Ala Asp Lys Asn Thr
    275   280   285

Asn Phe Phe Glu Arg His Ser Thr Ser Tyr Ala Gly Thr Val Ile Asn
    290   295   300

Asp Leu
305

<210> 71
<211> 408
<212> PRT
<213> Varicella zoster

<400> 71

Met Asp Leu Arg Ser Arg Thr Asp Asp Ala Leu Asp Met Glu Leu His
1   5   10   15

Ala Gly Phe Asp Ala Pro Glu Ile Ala Arg Ala Val Leu Thr Glu Lys
            20   25   30

Thr Leu Thr Gly Leu Ile Ser Ser Ile Ser Pro Leu Val Asn Arg Leu
            35   40   45

Arg Asp Ser Ile Leu Ile Phe Ser Asp Glu Gly Leu Ile Ile His Cys
    50   55   60

Ser Leu Glu Thr Glu Gln Leu Tyr Ile Pro Ile Pro Ala Asn Met Phe
65   70   75   80

Asp Gln Tyr Asn Trp Thr Gly Pro Arg Met Val Val Leu Ala Ala Thr
            85   90   95

Glu Gly Arg Ser Ser Leu Ile Asp Ala Phe Arg His Thr Lys Asp Pro
            100   105   110

Ser Thr Pro Thr Arg Leu Tyr Phe Lys Phe Thr Gly Gln Pro Pro Glu
            115   120   125

Arg Ser Ile Ile Gln Thr Met Val Trp Gln Arg Pro Gly Asp Cys Gly
    130   135   140

Pro Asp Asp Gln Val Gln Cys Tyr Lys Gln Val Val Lys Arg Glu Leu
145   150   155   160

424

Ala Cys Tyr Thr Met Met Phe Pro Asn Leu Thr Pro Asp Ile Ser Ile
              165   170   175

Cys Leu Lys Arg Asp Gln Phe Thr Arg Leu Gln Arg Leu Leu Lys Thr
              180   185   190

Phe Gly Phe Thr Thr Cys Phe Ile Leu Thr Ala Thr Asp Met Tyr Ile
              195   200   205

Gln Thr Ala Gly Gly Gly Phe Ile Ser Phe Asn Val Ser Leu Asp Ile
    210   215   220

Asn Gly Ser Lys Pro Thr Pro Tyr Asn Leu Ile Arg Ser Ile Thr Asn
225   230   235   240

Ser Lys Arg Ile Leu Asn Asn Val Val Tyr Gly Ser Gly Ser Met Arg
              245   250   255

Glu Phe Gly Val Leu Leu Glu Thr His Ser Gly Phe Arg Ser Ala Val
              260   265   270

Gln Asn Leu Lys Leu Thr Arg Asp Glu Thr Cys Tyr Ile Asn Phe Tyr
              275   280   285

Leu Ala Leu Thr Asn Ser Pro Met Val Gly Leu Tyr Ile Gln Arg Ser
    290   295   300

Ala Pro Val His Ser Phe Phe Tyr Ala Thr Phe Leu Ser Pro Lys Asp
305   310   315   320

Leu Lys Glu Lys Leu Thr Ser Met Gln Leu Phe Ala Asn Met Glu Ser
              325   330   335

Val Lys Asp Glu Pro Pro Leu Lys Lys Arg Arg Asn Leu Leu Thr Lys
              340   345   350

Arg Asn Glu Lys Asn Thr Gly Asn Lys Met Gly Gly Lys Leu Pro Glu
              355   360   365

Thr Thr Trp Gln Glu Gly Ile Gly Ile Arg Glu Tyr Cys Val Ala Pro
    370   375   380

425

```
Pro Val Asp Pro Ala Gly Thr Leu Asp Tyr Ser Glu Leu Ser Arg Glu
385             390             395             400


Ser Asp Val Ile Cys Thr Val Lys
                405



<210>  72
<211>  406
<212>  PRT
<213>  Varicella zoster


<400>  72

Met Ala Val Asn Gly Glu Arg Ala Val His Asp Glu Asn Leu Gly Val
1               5               10              15


Leu Asp Arg Glu Leu Ile Arg Ala Gln Ser Ile Gln Gly Cys Val Gly
            20              25              30


Asn Pro Gln Glu Cys Asn Ser Cys Ala Ile Thr Ser Ala Ser Arg Leu
        35              40              45


Phe Leu Val Gly Leu Gln Ala Ser Val Ile Thr Ser Gly Leu Ile Leu
    50              55              60


Gln Tyr His Val Cys Glu Ala Ala Val Asn Ala Thr Ile Met Gly Leu
65              70              75              80


Ile Val Val Ser Gly Leu Trp Pro Thr Ser Val Lys Phe Leu Arg Thr
                85              90              95


Leu Ala Lys Leu Gly Arg Cys Leu Gln Thr Val Val Val Leu Gly Phe
            100             105             110


Ala Val Leu Trp Ala Val Gly Cys Pro Ile Ser Arg Asp Leu Pro Phe
        115             120             125


Val Glu Leu Leu Gly Ile Ser Ile Ser Ala Ile Thr Gly Thr Val Ala
    130             135             140


Ala Val His Ile His Tyr Tyr Asn Phe Val Thr Thr Phe Asn Gly Pro
145             150             155             160


His Ile Tyr Phe Tyr Val Met Met Leu Gly Thr Gly Leu Gly Gly Leu
```

426

Leu Thr Val Ile Leu Tyr Met Tyr Val Ser Lys Tyr Glu Val Leu Ile
        180   185   190

Gly Leu Cys Ile Ser Ile Val Thr Leu Val Ser Ile Val Asp Ala Ala
        195   200   205

Thr Asp Leu Gln Asp Thr Cys Ile Tyr Arg Lys Asn Arg His Lys Gln
    210   215   220

Leu Asn Thr Tyr Thr Asp Leu Gly Phe Ala Val Val Tyr Thr Gln Asn
225   230   235   240

Asp Arg Gly Arg Val Cys Asp His Arg Glu Ser Ser Arg Thr Leu Lys
                245   250   255

Arg Val Phe Lys Gly Ile Arg Ile Met Ser Val Ile Pro Pro Val Leu
        260   265   270

Tyr Ile Val Thr Pro Leu Met Trp Ala Ile Ser His Ile Ile Lys Leu
        275   280   285

Asn His Phe Ile Lys Leu Thr Gln Val Thr Leu Ala Val Ser Ile Gly
    290   295   300

Gly His Ile Ile Ala Phe Gly Leu Gln Gly Phe Ala Val Leu Tyr Gln
305   310   315   320

Glu Lys Lys Asn Leu Trp Val Ile Val Leu Tyr Thr Thr Thr Ser Val
                325   330   335

Thr Gly Ile Ala Val Thr Phe Ala Gly Ile Ser Trp Gly Ala Ile Ile
        340   345   350

Ile Leu Thr Ser Thr Val Ala Ala Gly Leu Thr Cys Ile Gln Met Met
        355   360   365

Arg Leu Ser Val Lys Pro Ile Asp Cys Phe Met Ala Ser His Ile Thr
        370   375   380

Lys Val Tyr His Val Cys Val Tyr Ile Ile Ile Asn Leu Cys Tyr Leu
385   390   395   400

427

Cys Gly Thr Tyr Val Ser
                405

<210> 73
<211> 560
<212> PRT
<213> Varicella zoster

<400> 73

Met Lys Arg Ile Gln Ile Asn Leu Ile Leu Thr Ile Ala Cys Ile Gln
1   5   10   15

Leu Ser Thr Glu Ser Gln Pro Thr Pro Val Ser Ile Thr Glu Leu Tyr
                20   25   30

Thr Ser Ala Ala Thr Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser
                35   40   45

Ala Ala Ser Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala
        50   55   60

Ser Arg Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Ser Arg
65   70   75   80

Lys Pro Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Thr Arg Lys Pro
                85   90   95

Asp Pro Ala Val Ala Pro Thr Ser Ala Ala Ser Arg Lys Pro Asp Pro
                100   105   110

Ala Val Ala Pro Thr Ser Ala Ala Thr Arg Lys Pro Asp Pro Ala Val
        115   120   125

Ala Pro Thr Ser Ala Ala Ser Arg Lys Pro Asp Pro Ala Ala Asn Thr
    130   135   140

Gln His Ser Gln Pro Pro Phe Leu Tyr Glu Asn Ile Gln Cys Val His
145   150   155   160

Gly Gly Ile Gln Ser Ile Pro Tyr Phe His Thr Phe Ile Met Pro Cys
                165   170   175

428

Tyr Met Arg Leu Thr Thr Gly Gln Gln Ala Ala Phe Lys Gln Gln Gln
        180   185   190

Lys Thr Tyr Glu Gln Tyr Ser Leu Asp Pro Glu Gly Ser Asn Ile Thr
        195   200   205

Arg Trp Lys Ser Leu Ile Arg Pro Asp Leu His Ile Glu Val Trp Phe
    210   215   220

Thr Arg His Leu Ile Asp Pro His Arg Gln Leu Gly Asn Ala Leu Ile
225   230   235   240

Arg Met Pro Asp Leu Pro Val Met Leu Tyr Ser Asn Ser Ala Asp Leu
        245   250   255

Asn Leu Ile Asn Asn Pro Glu Ile Phe Thr His Ala Lys Glu Asn Tyr
        260   265   270

Val Ile Pro Asp Val Lys Thr Thr Ser Asp Phe Ser Val Thr Ile Leu
        275   280   285

Ser Met Asp Ala Thr Thr Glu Gly Thr Tyr Ile Trp Arg Val Val Asn
    290   295   300

Thr Lys Thr Lys Asn Val Ile Ser Glu His Ser Ile Thr Val Thr Thr
305   310   315   320

Tyr Tyr Arg Pro Asn Ile Thr Val Val Gly Asp Pro Val Leu Thr Gly
        325   330   335

Gln Thr Tyr Ala Ala Tyr Cys Asn Val Ser Lys Tyr Tyr Pro Pro His
        340   345   350

Ser Val Arg Val Arg Trp Thr Ser Arg Phe Gly Asn Ile Gly Lys Asn
        355   360   365

Phe Ile Thr Asp Ala Ile Gln Glu Tyr Ala Asn Gly Leu Phe Ser Tyr
    370   375   380

Val Ser Ala Val Arg Ile Pro Gln Gln Lys Gln Met Asp Tyr Pro Pro
385   390   395   400

Pro Ala Ile Gln Cys Asn Val Leu Trp Ile Arg Asp Gly Val Ser Asn

429

Met Lys Tyr Ser Ala Val Val Thr Pro Asp Val Tyr Pro Phe Pro Asn
            420   425   430

Val Ser Ile Gly Ile Ile Asp Gly His Ile Val Cys Thr Ala Lys Cys
            435   440   445

Val Pro Arg Gly Val Val His Phe Val Trp Trp Val Asn Asp Ser Pro
        450   455   460

Ile Asn His Glu Asn Ser Glu Ile Thr Gly Val Cys Asp Gln Asn Lys
465   470   475   480

Arg Phe Val Asn Met Gln Ser Ser Cys Pro Thr Ser Glu Leu Asp Gly
                485   490   495

Pro Ile Thr Tyr Ser Cys His Leu Asp Gly Tyr Pro Lys Lys Phe Pro
            500   505   510

Pro Phe Ser Ala Val Tyr Thr Tyr Asp Ala Ser Thr Tyr Ala Thr Thr
            515   520   525

Phe Ser Val Val Ala Val Ile Ile Gly Val Ile Ser Ile Leu Gly Thr
        530   535   540

Leu Gly Leu Ile Ala Val Ile Ala Thr Leu Cys Ile Arg Cys Cys Ser
545   550   555   560

<210> 74
<211> 396
<212> PRT
<213> Varicella zoster

<400> 74

Met Asn Glu Ala Val Ile Asp Pro Ile Leu Glu Thr Ala Val Asn Thr
1   5   10   15

Gly Asp Met Phe Cys Ser Gln Thr Ile Pro Asn Arg Cys Leu Lys Asp
            20   25   30

Thr Ile Leu Ile Glu Val Gln Pro Glu Cys Ala Asp Thr Leu Gln Cys
        35   40   45

```
Val Leu Asp Asp Lys Val Ser Arg His Gln Pro Leu Leu Leu Arg Asn
    50              55                  60

His Lys Lys Leu Glu Leu Pro Ser Glu Lys Ser Val Thr Arg Gly Gly
65                  70                  75                  80

Phe Tyr Met Gln Gln Leu Glu Leu Leu Val Lys Ser Ala Pro Pro Asn
                85                  90                  95

Glu Tyr Ala Leu Leu Leu Ile Gln Cys Lys Asp Thr Ala Leu Ala Asp
            100             105             110

Glu Asp Asn Phe Phe Val Ala Asn Gly Val Ile Asp Ala Gly Tyr Arg
        115             120             125

Gly Val Ile Ser Ala Leu Leu Tyr Tyr Arg Pro Gly Val Thr Val Ile
    130             135             140

Leu Pro Gly His Leu Thr Ile Tyr Leu Phe Pro Val Lys Leu Arg Gln
145             150             155             160

Ser Arg Leu Leu Pro Lys Asn Val Leu Lys His Leu Asp Pro Ile Phe
            165             170             175

Lys Ser Ile Gln Val Gln Pro Leu Ser Asn Ser Pro Ser Asn Tyr Glu
            180             185             190

Lys Pro Val Ile Pro Glu Phe Ala Asp Ile Ser Thr Val Gln Gln Gly
        195             200             205

Gln Pro Leu His Arg Asp Ser Ala Glu Tyr His Ile Asp Val Pro Leu
    210             215             220

Thr Tyr Lys His Ile Ile Asn Pro Lys Arg Gln Glu Asp Ala Gly Tyr
225             230             235             240

Asp Ile Cys Val Pro Tyr Asn Leu Tyr Leu Lys Arg Asn Glu Phe Ile
            245             250             255

Lys Ile Val Leu Pro Ile Ile Arg Asp Trp Asp Leu Gln His Pro Ser
            260             265             270


                            431
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```
Ile Asn Ala Tyr Ile Phe Gly Arg Ser Ser Lys Ser Arg Ser Gly Ile
        275                 280                 285


Ile Val Cys Pro Thr Ala Trp Pro Ala Gly Glu His Cys Lys Phe Tyr
        290                 295                 300


Val Tyr Asn Leu Thr Gly Asp Asp Ile Arg Ile Lys Thr Gly Asp Arg
305                 310                 315                 320


Leu Ala Gln Val Leu Leu Ile Asp His Asn Thr Gln Ile His Leu Lys
                325                 330                 335


His Asn Val Leu Ser Asn Ile Ala Phe Pro Tyr Ala Ile Arg Gly Lys
                340                 345                 350


Cys Gly Ile Pro Gly Val Gln Trp Tyr Phe Thr Lys Thr Leu Asp Leu
        355                 360                 365


Ile Ala Thr Pro Ser Glu Arg Gly Thr Arg Gly Phe Gly Ser Thr Asp
        370                 375                 380


Lys Glu Thr Asn Asp Val Asp Phe Leu Leu Lys His
385                 390                 395


<210>  75
<211>  1083
<212>  PRT
<213>  Varicella zoster

<400>  75

Met Asp Lys Ser Ser Lys Pro Thr Ile Arg Leu Leu Phe Ala Thr Lys
1               5                   10                  15


Gly Cys Ala Ile Ser His Ser Leu Leu Leu Leu Thr Gly Gln Ile Ser
                20                  25                  30


Thr Glu Pro Leu Tyr Val Val Ser Tyr Thr Trp Thr Pro Asp Leu Asp
        35                  40                  45


Asp Val Phe Val Lys Asn Gly Arg Glu Glu Ile Thr Gln Val Ile Pro
        50                  55                  60


Thr Lys Arg Pro Arg Glu Val Thr Glu Asn Asp Glu Glu Asn Gln Ile
65                  70                  75                  80
```

432

```
Met His Leu Phe Cys Ser Arg Asp Val Asn Val Ile Phe Tyr Leu Ile
              85                  90                  95


Gly Gly Phe Ser Thr Gly Asp Val Arg Ser Arg Val Trp Pro Ile Phe
            100                 105                 110


Phe Cys Cys Phe Lys Thr Gln Thr Asp Phe Lys Ala Leu Tyr Lys Ala
        115                 120                 125


Leu Trp Tyr Gly Ala Pro Leu Asn Pro His Ile Ile Ser Asp Thr Leu
    130                 135                 140


Cys Ile Ser Glu Thr Phe Asp Ile His Ser Glu Val Ile Gln Thr Leu
145                 150                 155                 160


Met Val Thr Thr His His Leu Asn Arg Lys Gly Leu Ser Asp Asn Gly
            165                 170                 175


Leu Cys Ile Thr Glu Ala Thr Leu Cys Lys Leu Val Lys Lys Ser Val
        180                 185                 190


Gly Arg Gln Glu Leu Thr Ser Leu Tyr Ala His Tyr Glu Arg Gln Val
        195                 200                 205


Leu Ala Ala Tyr Arg Arg Leu Tyr Trp Gly Tyr Gly Cys Ser Pro Phe
    210                 215                 220


Trp Tyr Ile Val Arg Phe Gly Pro Ser Glu Lys Thr Leu Val Leu Ala
225                 230                 235                 240


Thr Arg Tyr Tyr Leu Leu Gln Thr Asp Thr Ser Tyr Asn Thr Leu Glu
            245                 250                 255


Thr Pro Leu Tyr Asp Leu Gln Ala Ile Lys Asp Leu Phe Leu Thr Tyr
            260                 265                 270


Gln Val Pro Ala Leu Pro Asn Cys Ser Gly Tyr Asn Ile Ser Asp Leu
        275                 280                 285


Leu Ser Phe Asp Lys Leu Ser Met Phe Cys Cys Ser Ser Thr Tyr Thr
    290                 295                 300
```

433

Arg Gly Leu Thr Ala Lys Asn Ala Leu Ser Tyr Ile Leu Gln Arg Ile
305   310   315   320

His Thr Asp Thr Thr Glu Ile His Ala Val Ser Glu Tyr Ile Thr Asn
                325   330   335

Asp Arg Lys Gly Leu Lys Val Pro Asp Arg Glu Phe Val Asp Tyr Ile
                340   345   350

Tyr Leu Ala His Phe Glu Cys Phe Asn Arg Lys Gln Ile Ala Asp His
        355   360   365

Leu Gln Ala Val Thr Tyr Ser Asp Phe Val Asn Lys Pro Val Leu Leu
        370   375   380

Lys Ser Ser Asn Leu Gly Lys Arg Ala Thr Ala Asn Phe Phe Asn His
385   390   395   400

Val Arg Ser Arg Leu Asn Met Arg Asp Tyr Ile Lys Lys Asn Val Ile
                405   410   415

Cys Asp Val Thr Glu Leu Gly Pro Glu Ile Gly His Lys Tyr Thr Ile
                420   425   430

Thr Lys Thr Tyr Thr Leu Ser Leu Thr Tyr Ala Ala Lys Pro Ser Lys
        435   440   445

Phe Ile Gly Val Cys Asp Leu Ala Thr Thr Leu Thr Arg Arg Val Glu
        450   455   460

Asn Ile Glu Lys Gln Phe Ser Pro Tyr Gly Trp Ser Ser Thr Ile Pro
465   470   475   480

Ser Asn Pro Pro Gly Phe Asp Glu Leu Ser Asn Phe Glu Asp Ser Gly
                485   490   495

Val Ser Ala Glu Ala Leu Arg Ala Ala Asn Phe Ala Asn Asp Thr Pro
                500   505   510

Asn Gln Ser Gly Arg Thr Gly Phe Asp Thr Ser Pro Gly Ile Thr Lys
        515   520   525

434

```
Leu Leu Leu Phe Phe Ser Ala Ala Thr Gly Ile Ala Thr His Asp Val
    530             535             540

Ser Ile Leu Ser Tyr Lys Thr Pro Leu Glu Ala Leu Ile Gly His Ser
545             550             555             560

Glu Val Thr Gly Pro Met Pro Val Tyr Arg Val Ala Leu Pro His Gly
            565             570             575

Ala Gln Ala Phe Ala Val Ile Ala Asn Asp Thr Trp Ser Ser Ile Thr
        580             585             590

Asn Arg Tyr Thr Leu Pro His Glu Ala Arg Leu Ile Ala Glu Asp Leu
        595             600             605

Lys Gln Ile Asn Pro Cys Asn Phe Val Ala Ala Ser Leu Arg Asp Met
    610             615             620

Gln Leu Thr Leu Leu Leu Ser Thr Ser Val Lys Asn Val Ser Lys Ile
625             630             635             640

Ser Ser Asn Ile Pro Lys Asp Gln Leu Tyr Ile Asn Arg Asn Glu Leu
            645             650             655

Phe Asn Thr Asn Leu Ile Ile Thr Asn Leu Ile Leu Asp Val Asp Phe
        660             665             670

His Ile Arg Lys Pro Ile Pro Leu Gly Ile Leu His Ala Gly Met Arg
        675             680             685

Ala Phe Arg His Gly Ile Leu Thr Ala Met Gln Leu Leu Phe Pro Lys
    690             695             700

Ala Val Val Asn Pro Asn Lys Asp Pro Cys Tyr Phe Tyr Lys Thr Ala
705             710             715             720

Cys Pro Glu Pro Thr Val Glu Val Leu Asp Asp Asp Asn Leu Leu Asp
            725             730             735

Ile Thr Ser His Ser Asp Ile Asp Phe Tyr Ile Glu Asn Gly Glu Leu
        740             745             750

Tyr Thr Cys Val Glu Glu Asn Tyr Thr Glu Asp Val Trp Phe Phe Asp
```

435

Thr Gln Thr Thr Ser Glu Val His Thr His Ala Asp Val Ser Asn Asn
    770   775   780

Glu Asn Leu His Glu Thr Leu Pro Cys Asn Cys Lys Glu Lys Ile Gly
785   790   795   800

Phe Arg Val Cys Val Pro Ile Pro Asn Pro Tyr Ala Leu Val Gly Ser
            805   810   815

Ser Thr Leu Lys Gly Phe Ala Gln Ile Leu Gln Gln Ala Val Leu Leu
            820   825   830

Glu Arg Glu Phe Val Glu Tyr Ile Gly Pro Tyr Leu Arg Asp Phe Ser
    835   840   845

Phe Ile Asp Thr Gly Val Tyr Ser His Gly His Ser Leu Arg Leu Pro
    850   855   860

Phe Phe Ser Lys Val Thr Thr Thr Gly Thr Ala Val Gly Gln Leu Leu
865   870   875   880

Pro Phe Tyr Val Val Pro Glu Gln Cys Ile Asp Ile Leu Ala Phe Val
            885   890   895

Thr Ser His Arg Asn Pro Ala Asn Phe His Phe His Ser Arg Pro Gln
            900   905   910

Ser Asn Val Pro Val Gln Phe Ile Leu His Asn Leu Gly Gly Glu Tyr
            915   920   925

Ala Glu Phe Phe Glu Arg Lys Val Ala Arg Asn Lys Gln Ile Phe Ser
    930   935   940

Ser Pro Gln Ile Ser Leu Thr Lys Ala Leu Lys Glu Arg Gly Val Thr
945   950   955   960

Cys Leu Asp Ala Phe Thr Leu Glu Ala Phe Val Asp Ser Thr Ile Leu
            965   970   975

Glu Ser Ile Val Glu His Ile Ala Val His Phe Pro Gly Arg Asp Arg
            980   985   990

```
Glu Tyr Thr Leu Thr Ser Ser Lys  Cys Ile Ala Ile Lys  Arg Asp Trp
    995                 1000                  1005


Val Leu  Phe Gln Leu Ile Cys  Gly Thr Lys Gly Phe  Thr Cys Leu
    1010                1015                 1020


Arg Tyr  Pro His Arg Gly Gly  Arg Thr Ala Pro Arg  Thr Phe Val
    1025                1030                 1035


Ser Leu  Arg Val Asp His His  Asn Arg Leu Cys Ile  Ser Leu Ala
    1040                1045                 1050


Gln Gln  Cys Phe Ala Thr Lys  Cys Asp Ser Asn Arg  Met His Thr
    1055                1060                 1065


Ile Phe  Thr Leu Glu Val Pro  Asn Tyr Pro Asn Leu  Thr Ser Ser
    1070                1075                 1080


<210>  76
<211>  340
<212>  PRT
<213>  Varicella zoster

<400>  76

Met Gln Ala Leu Gly Ile Lys Thr Glu His Phe Ile Ile Met Cys Leu
1                 5                 10                15


Leu Ser Gly His Ala Val Phe Thr Leu Trp Tyr Thr Ala Arg Val Lys
           20                 25                 30


Phe Glu His Glu Cys Val Tyr Ala Thr Thr Val Ile Asn Gly Gly Pro
        35                 40                 45


Val Val Trp Gly Ser Tyr Asn Asn Ser Leu Ile Tyr Val Thr Phe Val
    50                 55                 60


Asn His Ser Thr Phe Leu Asp Gly Leu Ser Gly Tyr Asp Tyr Ser Cys
65                 70                 75                 80


Arg Glu Asn Leu Leu Ser Gly Asp Thr Met Val Lys Thr Ala Ile Ser
              85                 90                 95
```

437

Thr Pro Leu His Asp Lys Ile Arg Ile Val Leu Gly Thr Arg Asn Cys
        100   105   110

His Ala Tyr Phe Trp Cys Val Gln Leu Lys Met Ile Phe Phe Ala Trp
        115   120   125

Phe Val Tyr Gly Met Tyr Leu Gln Phe Arg Arg Ile Arg Arg Met Phe
        130   135   140

Gly Pro Phe Arg Ser Ser Cys Glu Leu Ile Ser Pro Thr Ser Tyr Ser
145   150   155   160

Leu Asn Tyr Val Thr Arg Val Ile Ser Asn Ile Leu Leu Gly Tyr Pro
                165   170   175

Tyr Thr Lys Leu Ala Arg Leu Leu Cys Asp Val Ser Met Arg Arg Asp
        180   185   190

Gly Met Ser Lys Val Phe Asn Ala Asp Pro Ile Ser Phe Leu Tyr Met
        195   200   205

His Lys Gly Val Thr Leu Leu Met Leu Leu Glu Val Ile Ala His Ile
        210   215   220

Ser Ser Gly Cys Ile Val Leu Leu Thr Leu Gly Val Ala Tyr Thr Pro
225   230   235   240

Cys Ala Leu Leu Tyr Pro Thr Tyr Ile Arg Ile Leu Ala Trp Val Val
                245   250   255

Val Cys Thr Leu Ala Ile Val Glu Leu Ile Ser Tyr Val Arg Pro Lys
        260   265   270

Pro Thr Lys Asp Asn His Leu Asn His Ile Asn Thr Gly Gly Ile Arg
        275   280   285

Gly Ile Cys Thr Thr Cys Cys Ala Thr Val Met Ser Gly Leu Ala Ile
        290   295   300

Lys Cys Phe Tyr Ile Val Ile Phe Ala Ile Ala Val Val Ile Phe Met
305   310   315   320

His Tyr Glu Gln Arg Val Gln Val Ser Leu Phe Gly Glu Ser Glu Asn

438

Ser Gln Lys His
            340

<210> 77
<211> 452
<212> PRT
<213> Varicella zoster

<400> 77

Met Ala Ser Ala Ser Ile Pro Thr Asp Pro Asp Val Ser Thr Ile Cys
1   5   10   15

Glu Asp Phe Met Asn Leu Leu Pro Asp Glu Pro Ser Asp Asp Phe Ala
                20   25   30

Leu Glu Val Thr Asp Trp Ala Asn Asp Glu Ala Ile Gly Ser Thr Pro
        35   40   45

Gly Glu Asp Ser Thr Thr Ser Arg Thr Val Tyr Val Glu Arg Thr Ala
    50   55   60

Asp Thr Ala Tyr Asn Pro Arg Tyr Ser Lys Arg Arg His Gly Arg Arg
65   70   75   80

Glu Ser Tyr His His Asn Arg Pro Lys Thr Leu Val Val Val Leu Pro
                85   90   95

Asp Ser Asn His His Gly Gly Arg Asp Val Glu Thr Gly Tyr Ala Arg
                100   105   110

Ile Glu Arg Gly His Arg Arg Ser Ser Arg Ser Tyr Asn Thr Gln Ser
        115   120   125

Ser Arg Lys His Arg Asp Arg Ser Leu Ser Asn Arg Arg Arg Pro
    130   135   140

Thr Thr Pro Pro Ala Met Thr Thr Gly Glu Arg Asn Asp Gln Thr His
145   150   155   160

Asp Glu Ser Tyr Arg Leu Arg Phe Ser Lys Arg Asp Ala Arg Arg Glu
                165   170   175

439

```
Arg Ile Arg Lys Glu Tyr Asp Ile Pro Val Asp Arg Ile Thr Gly Arg
        180                 185                 190

Ala Ile Glu Val Val Ser Thr Ala Gly Ala Ser Val Thr Ile Asp Ser
        195                 200                 205

Val Arg His Leu Asp Glu Thr Ile Glu Lys Leu Val Val Arg Tyr Ala
    210                 215                 220

Thr Ile Gln Glu Gly Asp Ser Trp Ala Ser Gly Gly Cys Phe Pro Gly
225                 230                 235                 240

Ile Lys Gln Asn Thr Ser Trp Pro Glu Leu Met Leu Tyr Gly His Glu
                245                 250                 255

Leu Tyr Arg Thr Phe Glu Ser Tyr Lys Met Asp Ser Arg Ile Ala Arg
            260                 265                 270

Ala Leu Arg Glu Arg Val Ile Arg Gly Glu Ser Leu Ile Glu Ala Leu
        275                 280                 285

Glu Ser Ala Asp Glu Leu Leu Thr Trp Ile Lys Met Leu Ala Ala Lys
    290                 295                 300

Asn Leu Pro Ile Tyr Thr Asn Asn Pro Ile Val Ala Thr Ser Lys Ser
305                 310                 315                 320

Leu Leu Glu Asn Leu Lys Leu Lys Leu Gly Pro Phe Val Arg Cys Leu
                325                 330                 335

Leu Leu Asn Arg Asp Asn Asp Leu Gly Ser Arg Thr Leu Pro Glu Leu
            340                 345                 350

Leu Arg Gln Gln Arg Phe Ser Asp Ile Thr Cys Ile Thr Thr Tyr Met
        355                 360                 365

Phe Val Met Ile Ala Arg Ile Ala Asn Ile Val Val Arg Gly Ser Lys
    370                 375                 380

Phe Val Glu Tyr Asp Asp Ile Ser Cys Asn Val Gln Val Leu Gln Glu
385                 390                 395                 400
```

440

Tyr Thr Pro Gly Ser Cys Leu Ala Gly Val Leu Glu Ala Leu Ile Thr
            405   410   415

His Gln Arg Glu Cys Gly Arg Val Glu Cys Thr Leu Ser Thr Trp Ala
            420   425   430

Gly His Leu Ser Asp Ala Arg Pro Tyr Gly Lys Tyr Phe Lys Cys Ser
            435   440   445

Thr Phe Asn Cys
        450

<210>   78
<211>   179
<212>   PRT
<213>   Varicella zoster

<400>   78

Met Asp Thr Thr Gly Ala Ser Glu Ser Ser Gln Pro Ile Arg Val Asn
1   5   10   15

Leu Lys Pro Asp Pro Leu Ala Ser Phe Thr Gln Val Ile Pro Pro Leu
            20   25   30

Ala Leu Glu Thr Thr Trp Thr Cys Pro Ala Asn Ser His Ala Pro Thr
            35   40   45

Pro Ser Pro Leu Tyr Gly Val Lys Arg Leu Cys Ala Leu Arg Ala Thr
        50   55   60

Cys Gly Arg Ala Asp Asp Leu His Ala Phe Leu Ile Gly Leu Gly Arg
65   70   75   80

Arg Asp Lys Pro Ser Glu Ser Pro Met Tyr Val Asp Leu Gln Pro Phe
            85   90   95

Cys Ser Leu Leu Asn Ser Gln Arg Leu Leu Pro Glu Met Ala Asn Tyr
            100   105   110

Asn Thr Leu Cys Asp Ala Pro Phe Ser Ala Ala Thr Gln Gln Met Met
            115   120   125

Leu Glu Ser Gly Gln Leu Gly Val His Leu Ala Ala Ile Gly Tyr His
        130   135   140

441

Cys His Cys Lys Ser Pro Phe Ser Ala Glu Cys Trp Thr Gly Ala Ser
145   150   155   160

Glu Ala Tyr Asp His Val Val Cys Gly Gly Lys Ala Arg Ala Ala Val
                165   170   175

Gly Gly Leu

<210>   79
<211>   108
<212>   PRT
<213>   Varicella zoster

<400>   79

Met Ser Arg Val Ser Glu Tyr Gly Val Pro Glu Gly Val Arg Glu Ser
1   5   10   15

Asp Ser Asp Thr Asp Ser Val Phe Met Tyr Gln His Thr Glu Leu Met
                20   25   30

Gln Asn Asn Ala Ser Pro Leu Val Val Gln Thr Arg Pro Pro Ala Val
        35   40   45

Leu Ile Pro Leu Val Asp Val Pro Arg Pro Arg Ser Arg Arg Lys Ala
    50   55   60

Ser Ala Gln Leu Lys Met Gln Met Asp Arg Leu Cys Asn Val Leu Gly
65   70   75   80

Val Val Leu Gln Met Ala Thr Leu Ala Leu Val Thr Tyr Ile Ala Phe
                85   90   95

Val Val His Thr Arg Ala Thr Ser Cys Lys Arg Glu
                100   105

<210>   80
<211>   5743
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS

442

<220>
<221> CDS
<222> (4556)..(5740)

<400> 80
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atg tca ttg ata atg ttt ggt cgt acg ctt ggt gaa gaa tct gta aga        48
Met Ser Leu Ile Met Phe Gly Arg Thr Leu Gly Glu Glu Ser Val Arg
1               5                   10                  15

tat ttt gaa cgt cta aag cgt cgt agg gat gaa cgc ttt ggg acg ttg        96
Tyr Phe Glu Arg Leu Lys Arg Arg Arg Asp Glu Arg Phe Gly Thr Leu
                20                  25                  30

gag tcc cct acc ccg tgt tcc acg cgg caa ggg tct ctg gga aac gca        144
Glu Ser Pro Thr Pro Cys Ser Thr Arg Gln Gly Ser Leu Gly Asn Ala
            35                  40                  45

acc caa atc ccg ttt ctg aat ttt gct ata gat gta acc cga cgt cat        192
Thr Gln Ile Pro Phe Leu Asn Phe Ala Ile Asp Val Thr Arg Arg His
        50                  55                  60

cag gcc gtt att ccc gga att gga acg ctt cac aac tgt tgt gaa tat        240
Gln Ala Val Ile Pro Gly Ile Gly Thr Leu His Asn Cys Cys Glu Tyr
65                  70                  75                  80

att cca ctg ttc tcg gct act gct cga cgg gca atg ttt ggc gcg ttt        288
Ile Pro Leu Phe Ser Ala Thr Ala Arg Arg Ala Met Phe Gly Ala Phe
                85                  90                  95

cta tcg tca aca ggg tac aac tgt acc ccc aat gta gtt ttg aaa cca        336
Leu Ser Ser Thr Gly Tyr Asn Cys Thr Pro Asn Val Val Leu Lys Pro
                100                 105                 110

tgg cga tat tcg gta aat gca aac gta agc cct gaa tta aaa aag gct        384
Trp Arg Tyr Ser Val Asn Ala Asn Val Ser Pro Glu Leu Lys Lys Ala
            115                 120                 125

gtc agt agt gta cag ttt tat gaa tat tca ccg gaa gaa gca gca cct        432
Val Ser Ser Val Gln Phe Tyr Glu Tyr Ser Pro Glu Glu Ala Ala Pro
    130                 135                 140

cat cga aat gcg tat agc ggt gtt atg aac aca ttt cgc gcg ttt tct        480
His Arg Asn Ala Tyr Ser Gly Val Met Asn Thr Phe Arg Ala Phe Ser
145                 150                 155                 160

ctg tcg gat agt ttc tgt cag ttg tct acc ttt aca caa cgg ttt tcg        528
Leu Ser Asp Ser Phe Cys Gln Leu Ser Thr Phe Thr Gln Arg Phe Ser
                165                 170                 175

tac ctt gtg gaa aca tct ttt gag agt att gaa gag tgt gga agt cat        576
Tyr Leu Val Glu Thr Ser Phe Glu Ser Ile Glu Glu Cys Gly Ser His
            180                 185                 190

ggc aaa cgc gca aag gtt gac gtt cca atc tat ggc aga tat aag ggg        624
Gly Lys Arg Ala Lys Val Asp Val Pro Ile Tyr Gly Arg Tyr Lys Gly
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443

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acg ttg gaa ctg ttt caa aaa atg atc ctc atg cac acc acg cat ttt      672
Thr Leu Glu Leu Phe Gln Lys Met Ile Leu Met His Thr Thr His Phe
    210                 215                 220

att tca tcg gtg cta ttg ggc gat cat gcc gac aga gtt gac tgc ttt      720
Ile Ser Ser Val Leu Leu Gly Asp His Ala Asp Arg Val Asp Cys Phe
225                 230                 235                 240

ctg cgt aca gtg ttt aac acg cca agt gtt tct gac agt gtt tta gaa      768
Leu Arg Thr Val Phe Asn Thr Pro Ser Val Ser Asp Ser Val Leu Glu
                245                 250                 255

cac ttc aaa caa aaa tca act gtg ttt ttg gta cca cgt aga cat ggg      816
His Phe Lys Gln Lys Ser Thr Val Phe Leu Val Pro Arg Arg His Gly
                260                 265                 270

aaa aca tgg ttt ctt gta cca tta ata gct tta gta atg gcc acg ttt      864
Lys Thr Trp Phe Leu Val Pro Leu Ile Ala Leu Val Met Ala Thr Phe
                275                 280                 285

aga gga att aaa gtg ggt tat acg gct cat ata cgc aaa gca acg gaa      912
Arg Gly Ile Lys Val Gly Tyr Thr Ala His Ile Arg Lys Ala Thr Glu
    290                 295                 300

ccc gtg ttt gag ggt atc aag tct cgc ctg gaa cag tgg ttt ggg gca      960
Pro Val Phe Glu Gly Ile Lys Ser Arg Leu Glu Gln Trp Phe Gly Ala
305                 310                 315                 320

aat tac gtg gat cat gta aaa ggc gaa tct att acg ttt tca ttt acc     1008
Asn Tyr Val Asp His Val Lys Gly Glu Ser Ile Thr Phe Ser Phe Thr
                325                 330                 335

gac ggg tct tac agc aca gcg gtg ttc gcg tca agt cac aac aca aac     1056
Asp Gly Ser Tyr Ser Thr Ala Val Phe Ala Ser Ser His Asn Thr Asn
                340                 345                 350

gtgagtgttt tataaattta acctttaata tattactgta aatgttgaca tatacctttc   1116

cacaacggcg gttgagttaa ggtatactag gtggttgtag gttccggttc acccgataat   1176

ctttgtgtct cggggaagca aattcgctga agcagaccac agccgttaat aatagcccgg   1236

cttaatgttt ctccaaacat ataaagctgc cacccagatg aatttactgg tacagagaga   1296

ccactggcgt tggttcccgc tataacgtcg ccaagatttg cggtaatgcg aggattttta   1356

gtactcgtaa ttcgaatgca ggtggtgaca tctacaaaaa gaacctgcgt ggcgccaatg   1416

tctacctcca cttttaattc ccgctgaccg gcctttctcc acatacacgg agcccaacac   1476

acacaacctt ccgcatgatt tgtgacatgg ggtaacgcat acagtgcccc cacgtgaact   1536

ctatgattac attcatcaca tccgtccgca tggctgagga gtcgatttaa tacagagcca   1596

agtatccgag catgccatcc ggcgggacat agccctatta aattaggttc catagccagt   1656
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444

acatataaac gccttcgttc gtctgaccac cacactcccg gagaaataac tttacatgcg   1716

tatggatttt tcggaagccg cgggggttgt aagtagttgc ttaagtttgg cgttggtgta   1776

agatctgcgg gggtgggatc tgctcgagga tccggaatag atgttggaag ggggtacgcg   1836

atcgggttct taaacgttgc tccaaaaaca tggtctatgt tttcaaccgg ataaattctt   1896

aaagtcgccg tcattgcgta cgagacctcg taattaaaat ttacaattac atgaaaagtc   1956

ttcggaggta agttcatctg acgtgggcgc gtgatgtaaa ttgtggctac aacaacggca   2016

atattagtag tatccgtttg aaggggggata aacggagcga tccttaaagt tataaaagca   2076

gttgatcgca ttattttcac ccggggatcg gtcaggatgg acttccataa tcccatatcc   2136

agcgttaatg catcgcagag tctctgaact gcctcggggg ttaatttgcg cgctgcaccc   2196

gtagcggtgt acagcggaaa tatgcgttgt aattccatga gcagaaaaac agtctagcgg   2256

attgccgccc gggtacttgt gggtttaatg ccacccaccc ggttatttta tattttaaga   2316

gggggtggaa acgggagaaa tgacgtaaaa ttacatatga agagattctg gtgttatgtt   2376

tttatagtga cactaattta tttatggggg ttgggaatag agaagcagaa tctgtctaga   2436

ataggtccga ttaacgatgc aggtagtgct gcctgtaggg tatcggtaat acaaaaacat   2496

gccgcaaatc cccccggtaa aactaaaatg gattgtaatt gctggttaaa tcctagacaa   2556

atgtacgcgt aacattgacc gggtaaatac ttagaacaaa ttccaatatc aacaatatcc   2616

gcgctgcgta taaatttacc cctcagttgt gtggaattac caataccaac cttttctaag   2676

gctacgggaa cggggacctt ggaaagctta agtatttccc ctcctgaatt ataatagtca   2736

aataaatata tagaacgatt acctaaccag catgggaagg aagcgtgaag gtagggtata   2796

taccccccac cttgtggtcg tgtatataca gatgacagat acgccaaaac cgcatacatc   2856

aaggagctgt tataaaacgc atccattgac atttccgtta acaccgaaac tatagtctga   2916

atcaggtctg gtgtgcgggc tacaatttca tcaataaccg tttgggaaga atctgcaata   2976

tcatattcca tgagttgttg tagagtcggg ttcgtttgta actccgttat aagaccttgg   3036

gttagcgatg tcacacacgc ttgtttaaat acctggttta aaaacatttc ggcgcctggt   3096

ttaaaggcgg gtaagggggt ttgattattt aggacgttag ccaaaaacgg taaacgcgcg   3156

actagctctt ggcgagctgt cacatgtagg ctttggggat tgtcaacccg ggcatttata   3216

cacgcagcat caataatagc ctgtgcagag tgatataaaa ttggacttcc ggtaatacgt   3276

cctcccccagg cagaggatcc gttgtaagat actacaatca acggactggg ggattctgcg   3336

445

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taatgtcgcg gtacaattga taggggacgc cgtttccaga aatctgctgg agtgtccccg       3396

ctaactaatt gggcataaca gatgtcgaac cattccataa gactttgggg ttctgtcgaa       3456

gctggggtaa acaatagaac gtcttgtaaa ggtgggatgc tggcggacga attgtttttc       3516

tttcccgtaa atcgcccttg tccaggcggc tcaaggacgc catcaaagga accgttattg       3576

atcggatctg tgttggaagt ttgcgctccg tggccctttg cactttgaag caacccagat       3636

gcaacgcggg aactagaagg tcggacgggg tgcctggagt aacaatgtt tacggcccgt        3696

tttattagct caaggacgtc ccgattattt tcctgtatgc gtgtttcagc aggggagtca       3756

tcaatacctc cagaagttaa ctgtcgatca agatcgatta tggatgaaac gggtccaata       3816

ttgtccccat ttgacgtgtg tgattcaccc atggctgcca ccatatgctc tgcgtatatt       3876

tttatagacg atgcaagacg aggggtgcat cggatatacg caatcagctg tttgcataat       3936

aaaagtaccc gttgtccatc agcaaaataa cgcgttccgt ttgggattag ttctgcatac       3996

ataatacaaa tatcacggtg cttgcggttt ccagtattta ttcgtatcgc tacaacgtta       4056

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gaattatgcg tggccgaaaa aacgtgtgaa acaaatggtt ccgtttttgg tattaagaga       4176

tttgttaagg cgttatcggg aatgtacgcg gcgaaaactt gacaccacgg ttcgcattga       4236

cctgtagcat gatatcttgt ttgtacttca accttgaagc gttgtccggg tttctttaaa       4296

atcagtaatg cgggatctat tccggccgca ataagccccg cgttaggtat cacaacgtgt       4356

agtaatcctt ttgtgtgatc attatgccaa agtgcatgtt tggtttcatt tgccaaatgg       4416

gcttccatta tacaccggat atggttgtac tggaaaaaaa aaagaaatat gtacgtattc       4476

aaacattttt tacgtacgtg gtatttaagg atacatttaa actttggtgg ggtaactata       4536

tatctttcta tcgttccag ggt atc cga ggt caa gat ttt aat ctt ctg ttt       4588
                         Gly Ile Arg Gly Gln Asp Phe Asn Leu Leu Phe
                                355                     360

gtg gat gaa gct aat ttt att cga cct gat gct gta caa act ata gtc       4636
Val Asp Glu Ala Asn Phe Ile Arg Pro Asp Ala Val Gln Thr Ile Val
    365                 370                 375

gga ttt tta aat caa acc aat tgt aaa att att ttt gtt tca tca aca       4684
Gly Phe Leu Asn Gln Thr Asn Cys Lys Ile Ile Phe Val Ser Ser Thr
380                 385                 390                 395

aat acc gga aaa gca agt aca agt ttt ttg tat aac tta cgt gga tcg       4732
Asn Thr Gly Lys Ala Ser Thr Ser Phe Leu Tyr Asn Leu Arg Gly Ser
                400                 405                 410

tcg gat cag ttg tta aac gtt gtt aca tat gta tgc gac gat cac atg       4780
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446

```
Ser Asp Gln Leu Leu Asn Val Val Thr Tyr Val Cys Asp Asp His Met
        415                 420                 425

ccg cgt gtt tta gca cat agc gat gtc aca gct tgt tcg tgt tat gta        4828
Pro Arg Val Leu Ala His Ser Asp Val Thr Ala Cys Ser Cys Tyr Val
        430                 435                 440

tta aat aag ccg gtt ttc atc aca atg gat gga gcc atg cgg cgc act        4876
Leu Asn Lys Pro Val Phe Ile Thr Met Asp Gly Ala Met Arg Arg Thr
        445                 450                 455

gca gat tta ttt atg gcc gac tcc ttc gtg cag gaa att gta ggt ggg        4924
Ala Asp Leu Phe Met Ala Asp Ser Phe Val Gln Glu Ile Val Gly Gly
460                 465                 470                 475

cgt aaa cag aat tct ggg ggt gtg ggg ttt gac cgg cca tta ttt aca        4972
Arg Lys Gln Asn Ser Gly Gly Val Gly Phe Asp Arg Pro Leu Phe Thr
                480                 485                 490

aaa act gcc cgt gag agg ttt att tta tat cgg ccg tca acc gtt gcg        5020
Lys Thr Ala Arg Glu Arg Phe Ile Leu Tyr Arg Pro Ser Thr Val Ala
                495                 500                 505

aat tgt gct ata tta tcg tca gtg ttg tac gtt tac gta gac cct gca        5068
Asn Cys Ala Ile Leu Ser Ser Val Leu Tyr Val Tyr Val Asp Pro Ala
        510                 515                 520

ttt acc tca aat aca cga gcg tct ggt act ggt gta gcg att gtt ggt        5116
Phe Thr Ser Asn Thr Arg Ala Ser Gly Thr Gly Val Ala Ile Val Gly
        525                 530                 535

cgt tat aag tcg gat tgg att ata ttt gga ttg gag cac ttt ttt ctt        5164
Arg Tyr Lys Ser Asp Trp Ile Ile Phe Gly Leu Glu His Phe Phe Leu
540                 545                 550                 555

aga gct tta act ggc acg tct tcc agt gag ata ggg cgt tgc gtt act        5212
Arg Ala Leu Thr Gly Thr Ser Ser Ser Glu Ile Gly Arg Cys Val Thr
                560                 565                 570

caa tgc tta ggc cac ata ctc gct tta cac ccc aat aca ttt aca aac        5260
Gln Cys Leu Gly His Ile Leu Ala Leu His Pro Asn Thr Phe Thr Asn
        575                 580                 585

gta cac gtt tct ata gag gga aac agc agc cag gat tct gca gtt gcc        5308
Val His Val Ser Ile Glu Gly Asn Ser Ser Gln Asp Ser Ala Val Ala
        590                 595                 600

ata tcg ttg gct ata gca caa cag ttt gct gtc ctc gaa aag gga aac        5356
Ile Ser Leu Ala Ile Ala Gln Gln Phe Ala Val Leu Glu Lys Gly Asn
        605                 610                 615

gtg cta tct tcc gct cca gtg tta ctg ttt tat cat tcc ata cct ccc        5404
Val Leu Ser Ser Ala Pro Val Leu Leu Phe Tyr His Ser Ile Pro Pro
620                 625                 630                 635

gga tgt agc gtg gcg tac cct ttt ttt tta tta caa aaa caa aaa acg        5452
Gly Cys Ser Val Ala Tyr Pro Phe Phe Leu Leu Gln Lys Gln Lys Thr
```

447

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                 640                       645                       650
ccg gcc gta gac tat ttt gtt aaa cga ttt aac tcc gga aat ata ata    5500
Pro Ala Val Asp Tyr Phe Val Lys Arg Phe Asn Ser Gly Asn Ile Ile
            655                       660                       665

gcc tca cag gag ctt gta tcc cta aca gta aag tta ggt gta gac ccc    5548
Ala Ser Gln Glu Leu Val Ser Leu Thr Val Lys Leu Gly Val Asp Pro
            670                       675                       680

gtg gag tat cta tgt aaa cag ttg gat aac ctg aca gag gta att aaa    5596
Val Glu Tyr Leu Cys Lys Gln Leu Asp Asn Leu Thr Glu Val Ile Lys
            685                       690                       695

ggc ggt atg ggt aat cta gac aca aaa act tac acg ggt aaa ggt acc    5644
Gly Gly Met Gly Asn Leu Asp Thr Lys Thr Tyr Thr Gly Lys Gly Thr
700                       705                       710                       715

acg gga aca atg tca gat gat ctg atg gtt gca tta att atg tcc gtg    5692
Thr Gly Thr Met Ser Asp Asp Leu Met Val Ala Leu Ile Met Ser Val
                      720                       725                       730

tat att ggc agt tca tgt ata ccg gat tcc gtg ttt atg cct att aaa    5740
Tyr Ile Gly Ser Ser Cys Ile Pro Asp Ser Val Phe Met Pro Ile Lys
            735                       740                       745

taa                                                                 5743
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<210> 81
<211> 747
<212> PRT
<213> Varicella zoster

<400> 81

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Met Ser Leu Ile Met Phe Gly Arg Thr Leu Gly Glu Glu Ser Val Arg
1               5                   10                  15


Tyr Phe Glu Arg Leu Lys Arg Arg Arg Asp Glu Arg Phe Gly Thr Leu
            20                  25                  30


Glu Ser Pro Thr Pro Cys Ser Thr Arg Gln Gly Ser Leu Gly Asn Ala
            35                  40                  45


Thr Gln Ile Pro Phe Leu Asn Phe Ala Ile Asp Val Thr Arg Arg His
        50                  55                  60


Gln Ala Val Ile Pro Gly Ile Gly Thr Leu His Asn Cys Cys Glu Tyr
65                  70                  75                  80


Ile Pro Leu Phe Ser Ala Thr Ala Arg Arg Ala Met Phe Gly Ala Phe
```

448

85   90   95

Leu Ser Ser Thr Gly Tyr Asn Cys Thr Pro Asn Val Val Leu Lys Pro
            100   105   110

Trp Arg Tyr Ser Val Asn Ala Asn Val Ser Pro Glu Leu Lys Lys Ala
            115   120   125

Val Ser Ser Val Gln Phe Tyr Glu Tyr Ser Pro Glu Glu Ala Ala Pro
    130   135   140

His Arg Asn Ala Tyr Ser Gly Val Met Asn Thr Phe Arg Ala Phe Ser
145   150   155   160

Leu Ser Asp Ser Phe Cys Gln Leu Ser Thr Phe Thr Gln Arg Phe Ser
            165   170   175

Tyr Leu Val Glu Thr Ser Phe Glu Ser Ile Glu Glu Cys Gly Ser His
        180   185   190

Gly Lys Arg Ala Lys Val Asp Val Pro Ile Tyr Gly Arg Tyr Lys Gly
        195   200   205

Thr Leu Glu Leu Phe Gln Lys Met Ile Leu Met His Thr Thr His Phe
    210   215   220

Ile Ser Ser Val Leu Leu Gly Asp His Ala Asp Arg Val Asp Cys Phe
225   230   235   240

Leu Arg Thr Val Phe Asn Thr Pro Ser Val Ser Asp Ser Val Leu Glu
            245   250   255

His Phe Lys Gln Lys Ser Thr Val Phe Leu Val Pro Arg Arg His Gly
            260   265   270

Lys Thr Trp Phe Leu Val Pro Leu Ile Ala Leu Val Met Ala Thr Phe
            275   280   285

Arg Gly Ile Lys Val Gly Tyr Thr Ala His Ile Arg Lys Ala Thr Glu
    290   295   300

Pro Val Phe Glu Gly Ile Lys Ser Arg Leu Glu Gln Trp Phe Gly Ala
305   310   315   320

                                449

Asn Tyr Val Asp His Val Lys Gly Glu Ser Ile Thr Phe Ser Phe Thr
            325   330   335

Asp Gly Ser Tyr Ser Thr Ala Val Phe Ala Ser Ser His Asn Thr Asn
            340   345   350

Gly Ile Arg Gly Gln Asp Phe Asn Leu Leu Phe Val Asp Glu Ala Asn
        355   360   365

Phe Ile Arg Pro Asp Ala Val Gln Thr Ile Val Gly Phe Leu Asn Gln
    370   375   380

Thr Asn Cys Lys Ile Ile Phe Val Ser Ser Thr Asn Thr Gly Lys Ala
385   390   395   400

Ser Thr Ser Phe Leu Tyr Asn Leu Arg Gly Ser Ser Asp Gln Leu Leu
            405   410   415

Asn Val Val Thr Tyr Val Cys Asp Asp His Met Pro Arg Val Leu Ala
            420   425   430

His Ser Asp Val Thr Ala Cys Ser Cys Tyr Val Leu Asn Lys Pro Val
        435   440   445

Phe Ile Thr Met Asp Gly Ala Met Arg Arg Thr Ala Asp Leu Phe Met
    450   455   460

Ala Asp Ser Phe Val Gln Glu Ile Val Gly Gly Arg Lys Gln Asn Ser
465   470   475   480

Gly Gly Val Gly Phe Asp Arg Pro Leu Phe Thr Lys Thr Ala Arg Glu
            485   490   495

Arg Phe Ile Leu Tyr Arg Pro Ser Thr Val Ala Asn Cys Ala Ile Leu
            500   505   510

Ser Ser Val Leu Tyr Val Tyr Val Asp Pro Ala Phe Thr Ser Asn Thr
            515   520   525

Arg Ala Ser Gly Thr Gly Val Ala Ile Val Gly Arg Tyr Lys Ser Asp
    530   535   540

450

```
Trp Ile Ile Phe Gly Leu Glu His Phe Phe Leu Arg Ala Leu Thr Gly
545                 550                 555                 560


Thr Ser Ser Ser Glu Ile Gly Arg Cys Val Thr Gln Cys Leu Gly His
                565                 570                 575


Ile Leu Ala Leu His Pro Asn Thr Phe Thr Asn Val His Val Ser Ile
                580                 585                 590


Glu Gly Asn Ser Ser Gln Asp Ser Ala Val Ala Ile Ser Leu Ala Ile
                595                 600                 605


Ala Gln Gln Phe Ala Val Leu Glu Lys Gly Asn Val Leu Ser Ser Ala
        610                 615                 620


Pro Val Leu Leu Phe Tyr His Ser Ile Pro Pro Gly Cys Ser Val Ala
625                 630                 635                 640


Tyr Pro Phe Phe Leu Leu Gln Lys Gln Lys Thr Pro Ala Val Asp Tyr
                645                 650                 655


Phe Val Lys Arg Phe Asn Ser Gly Asn Ile Ile Ala Ser Gln Glu Leu
                660                 665                 670


Val Ser Leu Thr Val Lys Leu Gly Val Asp Pro Val Glu Tyr Leu Cys
        675                 680                 685


Lys Gln Leu Asp Asn Leu Thr Glu Val Ile Lys Gly Gly Met Gly Asn
        690                 695                 700


Leu Asp Thr Lys Thr Tyr Thr Gly Lys Gly Thr Thr Gly Thr Met Ser
705                 710                 715                 720


Asp Asp Leu Met Val Ala Leu Ile Met Ser Val Tyr Ile Gly Ser Ser
                725                 730                 735


Cys Ile Pro Asp Ser Val Phe Met Pro Ile Lys
                740                 745


<210>   82
<211>   1308
<212>   DNA
<213>   Varicella zoster
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451

<220>
<221> CDS
<222> (1)..(1308)

<400> 82
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atg gga act caa aag aag ggg ccg cgt tct gaa aaa gtc tcg ccg tac    48
Met Gly Thr Gln Lys Lys Gly Pro Arg Ser Glu Lys Val Ser Pro Tyr
1               5                   10                  15

gac acc acg aca ccc gag gtg gaa gcg tta gat cat caa atg gat acg    96
Asp Thr Thr Thr Pro Glu Val Glu Ala Leu Asp His Gln Met Asp Thr
                20                  25                  30

ctt aat tgg cga att tgg ata att cag gtg atg atg ttc act ttg ggt   144
Leu Asn Trp Arg Ile Trp Ile Ile Gln Val Met Met Phe Thr Leu Gly
            35                  40                  45

gcg gta atg ctc ctg gct acg tta att gcc gcc tct tct gaa tat acc   192
Ala Val Met Leu Leu Ala Thr Leu Ile Ala Ala Ser Ser Glu Tyr Thr
        50                  55                  60

ggg atc cct tgt ttt tat gct gcc gta gtt gat tat gag tta ttt aac   240
Gly Ile Pro Cys Phe Tyr Ala Ala Val Val Asp Tyr Glu Leu Phe Asn
65                  70                  75                  80

gcc acc cta gat ggg ggg gta tgg tcc gga aat aga ggt gga tac agc   288
Ala Thr Leu Asp Gly Gly Val Trp Ser Gly Asn Arg Gly Gly Tyr Ser
                85                  90                  95

gcc ccg gtt ttg ttt ttg gaa cca cat agc gtt gtg gca ttt act tac   336
Ala Pro Val Leu Phe Leu Glu Pro His Ser Val Val Ala Phe Thr Tyr
                100                 105                 110

tac acg gct tta acg gca atg gcc atg gcg gta tat aca ctg atc acg   384
Tyr Thr Ala Leu Thr Ala Met Ala Met Ala Val Tyr Thr Leu Ile Thr
            115                 120                 125

gcc gcg att ata cac cga gaa acg aaa aat caa cgt gtc cgg caa agc   432
Ala Ala Ile Ile His Arg Glu Thr Lys Asn Gln Arg Val Arg Gln Ser
        130                 135                 140

tcc ggt gtt gca tgg tta gtt gta gat ccc aca aca ctt ttt tgg ggt   480
Ser Gly Val Ala Trp Leu Val Val Asp Pro Thr Thr Leu Phe Trp Gly
145                 150                 155                 160

ctt ttg tca ttg tgg tta tta aac gcc gtt gtg tta tta tta gct tac   528
Leu Leu Ser Leu Trp Leu Leu Asn Ala Val Val Leu Leu Leu Ala Tyr
                165                 170                 175

aag caa atc ggc gtg gct gct aca tta tat ctt gga cat ttt gcg aca   576
Lys Gln Ile Gly Val Ala Ala Thr Leu Tyr Leu Gly His Phe Ala Thr
            180                 185                 190

agt gta ata ttt aca acg tat ttt tgt gga cgc gga aaa ttg gac gaa   624
Ser Val Ile Phe Thr Thr Tyr Phe Cys Gly Arg Gly Lys Leu Asp Glu
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452

```
acg aac ata aaa gcg gtc gca aat tta cga cag cag agc gtc ttt tta    672
Thr Asn Ile Lys Ala Val Ala Asn Leu Arg Gln Gln Ser Val Phe Leu
    210             215             220

tat cgc ctt gcg ggg cct acg cgc gca gtg ttc gtg aat ttg atg gct    720
Tyr Arg Leu Ala Gly Pro Thr Arg Ala Val Phe Val Asn Leu Met Ala
225             230             235             240

gcg ttg atg gcg ata tgt atc cta ttt gta tca tta atg ctg gaa ctt    768
Ala Leu Met Ala Ile Cys Ile Leu Phe Val Ser Leu Met Leu Glu Leu
            245             250             255

gtg gtg gcg aat cat cta cat acg gga ctg tgg tca tcg gtg tcc gtg    816
Val Val Ala Asn His Leu His Thr Gly Leu Trp Ser Ser Val Ser Val
            260             265             270

gcc atg tct aca ttt agt aca ttg tca gtt gta tat ctt ata gta tca    864
Ala Met Ser Thr Phe Ser Thr Leu Ser Val Val Tyr Leu Ile Val Ser
            275             280             285

gaa tta att ttg gcg cat tat ata cac gtg tta ata gga ccg tcc ctg    912
Glu Leu Ile Leu Ala His Tyr Ile His Val Leu Ile Gly Pro Ser Leu
    290             295             300

gga acg ctc gtg gcc tgt gct acg ttg gga acc gcc gcg cac tcg tat    960
Gly Thr Leu Val Ala Cys Ala Thr Leu Gly Thr Ala Ala His Ser Tyr
305             310             315             320

atg gac cga tta tat gac cct ata tcg gtt caa tct cca cgg tta att    1008
Met Asp Arg Leu Tyr Asp Pro Ile Ser Val Gln Ser Pro Arg Leu Ile
            325             330             335

ccc aca act cgg gga acc ttg gct tgc ctg gcc gtg ttt tcc gtt gtc    1056
Pro Thr Thr Arg Gly Thr Leu Ala Cys Leu Ala Val Phe Ser Val Val
            340             345             350

atg ttg ctt ctc aga ttg atg cgt gca tat gtg tat cat cga cag aaa    1104
Met Leu Leu Leu Arg Leu Met Arg Ala Tyr Val Tyr His Arg Gln Lys
            355             360             365

cgc agt cgg ttc tac ggt gcc gta aga aga gta ccc gag cgg gta cgg    1152
Arg Ser Arg Phe Tyr Gly Ala Val Arg Arg Val Pro Glu Arg Val Arg
    370             375             380

gga tac ata cga aaa gta aaa cct gca cat aga aat tct cgc cgc aca    1200
Gly Tyr Ile Arg Lys Val Lys Pro Ala His Arg Asn Ser Arg Arg Thr
385             390             395             400

aat tac cca tca caa ggc tac ggc tac gtc tat gaa aat gac tca aca    1248
Asn Tyr Pro Ser Gln Gly Tyr Gly Tyr Val Tyr Glu Asn Asp Ser Thr
            405             410             415

tat gaa acg gac cgc gag gat gag ctg tta tac gag cga tca aac agt    1296
Tyr Glu Thr Asp Arg Glu Asp Glu Leu Leu Tyr Glu Arg Ser Asn Ser
            420             425             430
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ggg tgg gag tag                                                            1308
Gly Trp Glu
        435


<210>   83
<211>   435
<212>   PRT
<213>   Varicella zoster

<400>   83

Met Gly Thr Gln Lys Lys Gly Pro Arg Ser Glu Lys Val Ser Pro Tyr
1               5                   10                  15


Asp Thr Thr Thr Pro Glu Val Glu Ala Leu Asp His Gln Met Asp Thr
                20                  25                  30


Leu Asn Trp Arg Ile Trp Ile Ile Gln Val Met Met Phe Thr Leu Gly
        35                  40                  45


Ala Val Met Leu Leu Ala Thr Leu Ile Ala Ala Ser Ser Glu Tyr Thr
    50                  55                  60


Gly Ile Pro Cys Phe Tyr Ala Ala Val Val Asp Tyr Glu Leu Phe Asn
65                  70                  75                  80


Ala Thr Leu Asp Gly Gly Val Trp Ser Gly Asn Arg Gly Gly Tyr Ser
                85                  90                  95


Ala Pro Val Leu Phe Leu Glu Pro His Ser Val Val Ala Phe Thr Tyr
                100                 105                 110


Tyr Thr Ala Leu Thr Ala Met Ala Met Ala Val Tyr Thr Leu Ile Thr
            115                 120                 125


Ala Ala Ile Ile His Arg Glu Thr Lys Asn Gln Arg Val Arg Gln Ser
    130                 135                 140


Ser Gly Val Ala Trp Leu Val Val Asp Pro Thr Thr Leu Phe Trp Gly
145                 150                 155                 160


Leu Leu Ser Leu Trp Leu Leu Asn Ala Val Val Leu Leu Leu Ala Tyr
                165                 170                 175
```

454

Lys Gln Ile Gly Val Ala Ala Thr Leu Tyr Leu Gly His Phe Ala Thr
        180   185   190

Ser Val Ile Phe Thr Thr Tyr Phe Cys Gly Arg Gly Lys Leu Asp Glu
        195   200   205

Thr Asn Ile Lys Ala Val Ala Asn Leu Arg Gln Gln Ser Val Phe Leu
    210   215   220

Tyr Arg Leu Ala Gly Pro Thr Arg Ala Val Phe Val Asn Leu Met Ala
225   230   235   240

Ala Leu Met Ala Ile Cys Ile Leu Phe Val Ser Leu Met Leu Glu Leu
                245   250   255

Val Val Ala Asn His Leu His Thr Gly Leu Trp Ser Ser Val Ser Val
                260   265   270

Ala Met Ser Thr Phe Ser Thr Leu Ser Val Val Tyr Leu Ile Val Ser
        275   280   285

Glu Leu Ile Leu Ala His Tyr Ile His Val Leu Ile Gly Pro Ser Leu
        290   295   300

Gly Thr Leu Val Ala Cys Ala Thr Leu Gly Thr Ala Ala His Ser Tyr
305   310   315   320

Met Asp Arg Leu Tyr Asp Pro Ile Ser Val Gln Ser Pro Arg Leu Ile
                325   330   335

Pro Thr Thr Arg Gly Thr Leu Ala Cys Leu Ala Val Phe Ser Val Val
        340   345   350

Met Leu Leu Leu Arg Leu Met Arg Ala Tyr Val Tyr His Arg Gln Lys
        355   360   365

Arg Ser Arg Phe Tyr Gly Ala Val Arg Arg Val Pro Glu Arg Val Arg
        370   375   380

Gly Tyr Ile Arg Lys Val Lys Pro Ala His Arg Asn Ser Arg Arg Thr
385   390   395   400

Asn Tyr Pro Ser Gln Gly Tyr Gly Tyr Val Tyr Glu Asn Asp Ser Thr

455

Tyr Glu Thr Asp Arg Glu Asp Glu Leu Leu Tyr Glu Arg Ser Asn Ser
        420   425   430

Gly Trp Glu
        435

<210> 84
<211> 2310
<212> DNA
<213> Varicella zoster

<220>
<221> CDS
<222> (1)..(2310)

<400> 84
atg gcc gaa ata acg tct ctt ttt aat aac agt tcc ggt agt gaa gaa   48
Met Ala Glu Ile Thr Ser Leu Phe Asn Asn Ser Ser Gly Ser Glu Glu
1   5   10   15

aaa agg ata gca agt tct gtt tct att gac cag ggc ttg aat gga agt   96
Lys Arg Ile Ala Ser Ser Val Ser Ile Asp Gln Gly Leu Asn Gly Ser
            20   25   30

aac cca aat gac caa tac aag aac atg ttc gat ata tac tgg aat gag   144
Asn Pro Asn Asp Gln Tyr Lys Asn Met Phe Asp Ile Tyr Trp Asn Glu
        35   40   45

tac gcc ccg gat ata ggg ttt tgt aca ttt ccg gag gaa gat ggc tgg   192
Tyr Ala Pro Asp Ile Gly Phe Cys Thr Phe Pro Glu Glu Asp Gly Trp
    50   55   60

atg tta ata cac cca acc acg caa agt atg ttg ttt cga aaa atc cta   240
Met Leu Ile His Pro Thr Thr Gln Ser Met Leu Phe Arg Lys Ile Leu
65   70   75   80

gcc ggt gac ttt gga tat acc gat gga caa ggc ata tat agc gct gta   288
Ala Gly Asp Phe Gly Tyr Thr Asp Gly Gln Gly Ile Tyr Ser Ala Val
                85   90   95

cgg tct acg gaa act gta att cgc caa gtt cag gca acc gtt ttg atg   336
Arg Ser Thr Glu Thr Val Ile Arg Gln Val Gln Ala Thr Val Leu Met
            100   105   110

aac gcg ttg gat gca act cgg tat gag gac cta gca gca gat tgg gaa   384
Asn Ala Leu Asp Ala Thr Arg Tyr Glu Asp Leu Ala Ala Asp Trp Glu
        115   120   125

cac cac atc caa caa tgt aac ctg cat gcc ggg gct cta gcg gaa cgt   432
His His Ile Gln Gln Cys Asn Leu His Ala Gly Ala Leu Ala Glu Arg
    130   135   140

456

```
tat ggg cta tgt gga gaa tca gaa gcc gta cgg ctt gca cat cag gtt        480
Tyr Gly Leu Cys Gly Glu Ser Glu Ala Val Arg Leu Ala His Gln Val
145                 150                 155                 160

ttt gaa acc tgg cgt caa aca tta cag tca tcg tta ctt gag ttt ctg        528
Phe Glu Thr Trp Arg Gln Thr Leu Gln Ser Ser Leu Leu Glu Phe Leu
                165                 170                 175

cgt gga ata acc ggt tgt ctc tat acc agt ggt tta aat gga agg gtc        576
Arg Gly Ile Thr Gly Cys Leu Tyr Thr Ser Gly Leu Asn Gly Arg Val
                180                 185                 190

ggt ttt gcc aaa tac gtg gac tgg ata gcc tgt gta ggt att gtg ccc        624
Gly Phe Ala Lys Tyr Val Asp Trp Ile Ala Cys Val Gly Ile Val Pro
            195                 200                 205

gtt gta aga aag gta cga tca gaa cag aat gga acc cct gca cca tta        672
Val Val Arg Lys Val Arg Ser Glu Gln Asn Gly Thr Pro Ala Pro Leu
            210                 215                 220

aat acg tat atg ggt caa gcg gca gaa ctg tcc cag atg tta aaa gtt        720
Asn Thr Tyr Met Gly Gln Ala Ala Glu Leu Ser Gln Met Leu Lys Val
225                 230                 235                 240

gcc gat gca acg ttg gcc aga gga gcg gcg gtt gtc aca agc cta gtt        768
Ala Asp Ala Thr Leu Ala Arg Gly Ala Ala Val Val Thr Ser Leu Val
                245                 250                 255

gag tgt atg caa aat gtt gct att atg gat tat gat agg acg cgt ctt        816
Glu Cys Met Gln Asn Val Ala Ile Met Asp Tyr Asp Arg Thr Arg Leu
                260                 265                 270

tat tat aat tat aac cga aga tta att atg gca aag gat gat gta acg        864
Tyr Tyr Asn Tyr Asn Arg Arg Leu Ile Met Ala Lys Asp Asp Val Thr
                275                 280                 285

ggc atg aag gga gag tgt ttg gtc gtg tgg ccg ccc gtt gta tgt ggg        912
Gly Met Lys Gly Glu Cys Leu Val Val Trp Pro Pro Val Val Cys Gly
    290                 295                 300

gag ggt gta gta ttt gac tca ccc tta cag cgg ctt tct ggg gag gtg        960
Glu Gly Val Val Phe Asp Ser Pro Leu Gln Arg Leu Ser Gly Glu Val
305                 310                 315                 320

ttg gcc tgt tat gca tta cgt gaa cat gct cgc gtc tgc caa gtt tta       1008
Leu Ala Cys Tyr Ala Leu Arg Glu His Ala Arg Val Cys Gln Val Leu
                325                 330                 335

aat aca gcc cct ttg cgc gtg tta ata ggt cgc cgg aat gaa gat gat       1056
Asn Thr Ala Pro Leu Arg Val Leu Ile Gly Arg Arg Asn Glu Asp Asp
                340                 345                 350

aga tct cac agc aca cgt gcg gtt gat cgt ata atg ggc gag aac gat       1104
Arg Ser His Ser Thr Arg Ala Val Asp Arg Ile Met Gly Glu Asn Asp
            355                 360                 365
```

457

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aca aca cgg gct gga tcg gcc gcg tct aga ctt gta aag cta ata gtt       1152
Thr Thr Arg Ala Gly Ser Ala Ala Ser Arg Leu Val Lys Leu Ile Val
    370             375             380

aac tta aaa aac atg aga cat gtt gga gat att acc gaa acc gta cgt       1200
Asn Leu Lys Asn Met Arg His Val Gly Asp Ile Thr Glu Thr Val Arg
385             390             395             400

tcc tat cta gaa gaa acg ggc aat cac att ctg gaa gga agt gga tcg       1248
Ser Tyr Leu Glu Glu Thr Gly Asn His Ile Leu Glu Gly Ser Gly Ser
            405             410             415

gtg gac aca tca caa ccg ggg ttt ggc aag gcc aac caa tcc ttt aac       1296
Val Asp Thr Ser Gln Pro Gly Phe Gly Lys Ala Asn Gln Ser Phe Asn
        420             425             430

ggg ggg gca atg tcc gga aca aca aac gtt caa agt gcg ttt aaa act       1344
Gly Gly Ala Met Ser Gly Thr Thr Asn Val Gln Ser Ala Phe Lys Thr
        435             440             445

tcg gtg gtt aac agt atc aac ggc atg ctc gag ggt tat gtg aat aat       1392
Ser Val Val Asn Ser Ile Asn Gly Met Leu Glu Gly Tyr Val Asn Asn
    450             455             460

tta ttc aaa acc att gag ggt ctc aag gat gtg aac agc gat ctg acc       1440
Leu Phe Lys Thr Ile Glu Gly Leu Lys Asp Val Asn Ser Asp Leu Thr
465             470             475             480

gaa agg ctc cag ttc aaa gaa gga gag ctg aaa cgg tta cgg gaa gag       1488
Glu Arg Leu Gln Phe Lys Glu Gly Glu Leu Lys Arg Leu Arg Glu Glu
            485             490             495

agg gta aaa ata aag cca tct aaa ggg tca cat att aca atg gca gaa       1536
Arg Val Lys Ile Lys Pro Ser Lys Gly Ser His Ile Thr Met Ala Glu
            500             505             510

gaa aca cgt att gcc gat tta aat cac gag gtt ata gat ctt acc ggc       1584
Glu Thr Arg Ile Ala Asp Leu Asn His Glu Val Ile Asp Leu Thr Gly
        515             520             525

ata ata ggg gat gat gca tat att gcc aat agt ttt caa tct cgt tat       1632
Ile Ile Gly Asp Asp Ala Tyr Ile Ala Asn Ser Phe Gln Ser Arg Tyr
    530             535             540

atc ccc cct tat gga gat gat ata aaa cgt ttg tct gag cta tgg aaa       1680
Ile Pro Pro Tyr Gly Asp Asp Ile Lys Arg Leu Ser Glu Leu Trp Lys
545             550             555             560

cag gaa ctt gtt cgc tgt ttt aag ctt cac cgg gta aac aat aat caa       1728
Gln Glu Leu Val Arg Cys Phe Lys Leu His Arg Val Asn Asn Asn Gln
            565             570             575

ggc cag gaa att tct gta tca tat tca aat gcg tca atc tca tta cta       1776
Gly Gln Glu Ile Ser Val Ser Tyr Ser Asn Ala Ser Ile Ser Leu Leu
            580             585             590

gtt gcg ccg tat ttt tca ttc ata tta cgg gcc acc cga tta gga ttc       1824
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458

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Val Ala Pro Tyr Phe Ser Phe Ile Leu Arg Ala Thr Arg Leu Gly Phe
    595                 600                 605

ttg gta act caa agc gag gta cat agg tca gag gaa gag tta tgc cag      1872
Leu Val Thr Gln Ser Glu Val His Arg Ser Glu Glu Glu Leu Cys Gln
    610                 615                 620

gct att ttt aaa aag gcg aga aca gag tcc tat tta tcc caa atc cga      1920
Ala Ile Phe Lys Lys Ala Arg Thr Glu Ser Tyr Leu Ser Gln Ile Arg
625                 630                 635                 640

ata tta tat gaa atg cag gtt cgc gca gag gta ata aaa cgg ggc cca      1968
Ile Leu Tyr Glu Met Gln Val Arg Ala Glu Val Ile Lys Arg Gly Pro
                645                 650                 655

cgg aga aca cca agt cct tcc tgg ggt ttg cct gac cct aca gaa gat      2016
Arg Arg Thr Pro Ser Pro Ser Trp Gly Leu Pro Asp Pro Thr Glu Asp
                660                 665                 670

gac gaa aga atc ccg gaa ccc aat aaa ata aat aac caa tac atg cat      2064
Asp Glu Arg Ile Pro Glu Pro Asn Lys Ile Asn Asn Gln Tyr Met His
                675                 680                 685

gtt gga tat aaa aac cta tcc cat ttt atg aaa gga cac ccc cct gag      2112
Val Gly Tyr Lys Asn Leu Ser His Phe Met Lys Gly His Pro Pro Glu
    690                 695                 700

agg tta cgg gta cac aag gta aat gca gcg gat tcg acc tta ctg gat      2160
Arg Leu Arg Val His Lys Val Asn Ala Ala Asp Ser Thr Leu Leu Asp
705                 710                 715                 720

aaa att cga gca aac cgg agg cgc ggg gat ggc cga tgg gat gtc cgg      2208
Lys Ile Arg Ala Asn Arg Arg Arg Gly Asp Gly Arg Trp Asp Val Arg
                725                 730                 735

aat aaa tat acc cag cat ttt agg ttg cag cgt aac gat cga caa ctt      2256
Asn Lys Tyr Thr Gln His Phe Arg Leu Gln Arg Asn Asp Arg Gln Leu
                740                 745                 750

act aac acg agc cga aga ggg gtt gga tgt gag cga cgt gat cga aga      2304
Thr Asn Thr Ser Arg Arg Gly Val Gly Cys Glu Arg Arg Asp Arg Arg
                755                 760                 765

tct tag                                                              2310
Ser
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<210> 85
<211> 769
<212> PRT
<213> Varicella zoster

<400> 85

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Met Ala Glu Ile Thr Ser Leu Phe Asn Asn Ser Ser Gly Ser Glu Glu
1               5                   10                  15
```

459

Lys Arg Ile Ala Ser Ser Val Ser Ile Asp Gln Gly Leu Asn Gly Ser
          20   25   30

Asn Pro Asn Asp Gln Tyr Lys Asn Met Phe Asp Ile Tyr Trp Asn Glu
          35   40   45

Tyr Ala Pro Asp Ile Gly Phe Cys Thr Phe Pro Glu Glu Asp Gly Trp
     50   55   60

Met Leu Ile His Pro Thr Thr Gln Ser Met Leu Phe Arg Lys Ile Leu
65   70   75   80

Ala Gly Asp Phe Gly Tyr Thr Asp Gly Gln Gly Ile Tyr Ser Ala Val
                    85   90   95

Arg Ser Thr Glu Thr Val Ile Arg Gln Val Gln Ala Thr Val Leu Met
               100   105   110

Asn Ala Leu Asp Ala Thr Arg Tyr Glu Asp Leu Ala Ala Asp Trp Glu
          115   120   125

His His Ile Gln Gln Cys Asn Leu His Ala Gly Ala Leu Ala Glu Arg
     130   135   140

Tyr Gly Leu Cys Gly Glu Ser Glu Ala Val Arg Leu Ala His Gln Val
145   150   155   160

Phe Glu Thr Trp Arg Gln Thr Leu Gln Ser Ser Leu Leu Glu Phe Leu
               165   170   175

Arg Gly Ile Thr Gly Cys Leu Tyr Thr Ser Gly Leu Asn Gly Arg Val
          180   185   190

Gly Phe Ala Lys Tyr Val Asp Trp Ile Ala Cys Val Gly Ile Val Pro
          195   200   205

Val Val Arg Lys Val Arg Ser Glu Gln Asn Gly Thr Pro Ala Pro Leu
     210   215   220

Asn Thr Tyr Met Gly Gln Ala Ala Glu Leu Ser Gln Met Leu Lys Val
225   230   235   240

460

Ala Asp Ala Thr Leu Ala Arg Gly Ala Ala Val Val Thr Ser Leu Val
            245   250   255

Glu Cys Met Gln Asn Val Ala Ile Met Asp Tyr Asp Arg Thr Arg Leu
            260   265   270

Tyr Tyr Asn Tyr Asn Arg Arg Leu Ile Met Ala Lys Asp Asp Val Thr
            275   280   285

Gly Met Lys Gly Glu Cys Leu Val Val Trp Pro Pro Val Val Cys Gly
    290   295   300

Glu Gly Val Val Phe Asp Ser Pro Leu Gln Arg Leu Ser Gly Glu Val
305   310   315   320

Leu Ala Cys Tyr Ala Leu Arg Glu His Ala Arg Val Cys Gln Val Leu
            325   330   335

Asn Thr Ala Pro Leu Arg Val Leu Ile Gly Arg Arg Asn Glu Asp Asp
            340   345   350

Arg Ser His Ser Thr Arg Ala Val Asp Arg Ile Met Gly Glu Asn Asp
            355   360   365

Thr Thr Arg Ala Gly Ser Ala Ala Ser Arg Leu Val Lys Leu Ile Val
    370   375   380

Asn Leu Lys Asn Met Arg His Val Gly Asp Ile Thr Glu Thr Val Arg
385   390   395   400

Ser Tyr Leu Glu Glu Thr Gly Asn His Ile Leu Glu Gly Ser Gly Ser
            405   410   415

Val Asp Thr Ser Gln Pro Gly Phe Gly Lys Ala Asn Gln Ser Phe Asn
            420   425   430

Gly Gly Ala Met Ser Gly Thr Thr Asn Val Gln Ser Ala Phe Lys Thr
    435   440   445

Ser Val Val Asn Ser Ile Asn Gly Met Leu Glu Gly Tyr Val Asn Asn
    450   455   460

461

Leu Phe Lys Thr Ile Glu Gly Leu Lys Asp Val Asn Ser Asp Leu Thr
465   470   475   480

Glu Arg Leu Gln Phe Lys Glu Gly Glu Leu Lys Arg Leu Arg Glu Glu
                485   490   495

Arg Val Lys Ile Lys Pro Ser Lys Gly Ser His Ile Thr Met Ala Glu
                500   505   510

Glu Thr Arg Ile Ala Asp Leu Asn His Glu Val Ile Asp Leu Thr Gly
                515   520   525

Ile Ile Gly Asp Asp Ala Tyr Ile Ala Asn Ser Phe Gln Ser Arg Tyr
                530   535   540

Ile Pro Pro Tyr Gly Asp Asp Ile Lys Arg Leu Ser Glu Leu Trp Lys
545   550   555   560

Gln Glu Leu Val Arg Cys Phe Lys Leu His Arg Val Asn Asn Asn Gln
                565   570   575

Gly Gln Glu Ile Ser Val Ser Tyr Ser Asn Ala Ser Ile Ser Leu Leu
                580   585   590

Val Ala Pro Tyr Phe Ser Phe Ile Leu Arg Ala Thr Arg Leu Gly Phe
                595   600   605

Leu Val Thr Gln Ser Glu Val His Arg Ser Glu Glu Glu Leu Cys Gln
                610   615   620

Ala Ile Phe Lys Lys Ala Arg Thr Glu Ser Tyr Leu Ser Gln Ile Arg
625   630   635   640

Ile Leu Tyr Glu Met Gln Val Arg Ala Glu Val Ile Lys Arg Gly Pro
                645   650   655

Arg Arg Thr Pro Ser Pro Ser Trp Gly Leu Pro Asp Pro Thr Glu Asp
                660   665   670

Asp Glu Arg Ile Pro Glu Pro Asn Lys Ile Asn Asn Gln Tyr Met His
                675   680   685

Val Gly Tyr Lys Asn Leu Ser His Phe Met Lys Gly His Pro Pro Glu

462

Arg Leu Arg Val His Lys Val Asn Ala Ala Asp Ser Thr Leu Leu Asp
705   710   715   720

Lys Ile Arg Ala Asn Arg Arg Arg Gly Asp Gly Arg Trp Asp Val Arg
                    725   730   735

Asn Lys Tyr Thr Gln His Phe Arg Leu Gln Arg Asn Asp Arg Gln Leu
              740   745   750

Thr Asn Thr Ser Arg Arg Gly Val Gly Cys Glu Arg Arg Asp Arg Arg
          755   760   765

Ser

<210>   86
<211>   666
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS
<222>   (1)..(666)

<400>   86
atg ttt tcg gag ttg cct cct tcc gta ccg acg gca ttg ctt caa tgg   48
Met Phe Ser Glu Leu Pro Pro Ser Val Pro Thr Ala Leu Leu Gln Trp
1   5   10   15

ggt tgg gga ttg cat cgt gga ccg tgt tcg atc cca aat ttt aaa cag   96
Gly Trp Gly Leu His Arg Gly Pro Cys Ser Ile Pro Asn Phe Lys Gln
                20   25   30

gta gcc agc caa cac agt gtt cag aac gat ttt aca gaa aat agc gtt   144
Val Ala Ser Gln His Ser Val Gln Asn Asp Phe Thr Glu Asn Ser Val
            35   40   45

gat gca aat gaa aaa ttt ccg att ggg cac gcg ggc tgt att gag aaa   192
Asp Ala Asn Glu Lys Phe Pro Ile Gly His Ala Gly Cys Ile Glu Lys
    50   55   60

acc aaa gac gac tat gta cca ttt gat acg ttg ttc atg gta tca tct   240
Thr Lys Asp Asp Tyr Val Pro Phe Asp Thr Leu Phe Met Val Ser Ser
65   70   75   80

att gac gaa ctt ggg cgg aga caa tta acc gac acc atc cgc cgc agc   288
Ile Asp Glu Leu Gly Arg Arg Gln Leu Thr Asp Thr Ile Arg Arg Ser
                85   90   95

463

```
ttg gtt atg aac gcc tgt gaa ata acg gtc gcg tgt acg aaa acc gca      336
Leu Val Met Asn Ala Cys Glu Ile Thr Val Ala Cys Thr Lys Thr Ala
            100             105             110

gcc ttt tct ggt cga ggc gtg tca cga caa aaa cac gtg acc cta tct      384
Ala Phe Ser Gly Arg Gly Val Ser Arg Gln Lys His Val Thr Leu Ser
            115             120             125

aaa aat aaa ttc aat cca tcc agt cat aag agc ctg caa atg ttt gtg      432
Lys Asn Lys Phe Asn Pro Ser Ser His Lys Ser Leu Gln Met Phe Val
            130             135             140

ttg tgt caa aaa acc cat gca ccc cgt gtc aga aac cta ctg tac gag      480
Leu Cys Gln Lys Thr His Ala Pro Arg Val Arg Asn Leu Leu Tyr Glu
145             150             155             160

agt att cgt gca aga aga cct cgc cga tat tac acc cgc tca acg gac      528
Ser Ile Arg Ala Arg Arg Pro Arg Arg Tyr Tyr Thr Arg Ser Thr Asp
            165             170             175

gga aaa tcg cgt ccg ttg gta cca gtg ttt gtg tat gag ttt acg gct      576
Gly Lys Ser Arg Pro Leu Val Pro Val Phe Val Tyr Glu Phe Thr Ala
            180             185             190

tta gat cgt gtc ctt tta cat aag gaa aat act ttg acc gac caa cca      624
Leu Asp Arg Val Leu Leu His Lys Glu Asn Thr Leu Thr Asp Gln Pro
            195             200             205

att aat act gaa aat agc ggt cat gga cgt acg aga acg taa            666
Ile Asn Thr Glu Asn Ser Gly His Gly Arg Thr Arg Thr
    210             215             220
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<210> 87
<211> 221
<212> PRT
<213> Varicella zoster

<400> 87

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Met Phe Ser Glu Leu Pro Pro Ser Val Pro Thr Ala Leu Leu Gln Trp
1               5                   10                  15


Gly Trp Gly Leu His Arg Gly Pro Cys Ser Ile Pro Asn Phe Lys Gln
            20                  25                  30


Val Ala Ser Gln His Ser Val Gln Asn Asp Phe Thr Glu Asn Ser Val
            35                  40                  45


Asp Ala Asn Glu Lys Phe Pro Ile Gly His Ala Gly Cys Ile Glu Lys
    50                  55                  60
```

464

```
Thr Lys Asp Asp Tyr Val Pro Phe Asp Thr Leu Phe Met Val Ser Ser
65                  70                  75                  80


Ile Asp Glu Leu Gly Arg Arg Gln Leu Thr Asp Thr Ile Arg Arg Ser
                85                  90                  95


Leu Val Met Asn Ala Cys Glu Ile Thr Val Ala Cys Thr Lys Thr Ala
            100                 105                 110


Ala Phe Ser Gly Arg Gly Val Ser Arg Gln Lys His Val Thr Leu Ser
            115                 120                 125


Lys Asn Lys Phe Asn Pro Ser Ser His Lys Ser Leu Gln Met Phe Val
        130                 135                 140


Leu Cys Gln Lys Thr His Ala Pro Arg Val Arg Asn Leu Leu Tyr Glu
145                 150                 155                 160


Ser Ile Arg Ala Arg Arg Pro Arg Arg Tyr Tyr Thr Arg Ser Thr Asp
                165                 170                 175


Gly Lys Ser Arg Pro Leu Val Pro Val Phe Val Tyr Glu Phe Thr Ala
            180                 185                 190


Leu Asp Arg Val Leu Leu His Lys Glu Asn Thr Leu Thr Asp Gln Pro
            195                 200                 205


Ile Asn Thr Glu Asn Ser Gly His Gly Arg Thr Arg Thr
    210                 215                 220



<210>   88
<211>   480
<212>   DNA
<213>   Varicella zoster


<220>
<221>   CDS
<222>   (1)..(480)


<400>   88
atg gca tca cat aaa tgg tta ctg cag ata gtt ttt tta aaa act atc      48
Met Ala Ser His Lys Trp Leu Leu Gln Ile Val Phe Leu Lys Thr Ile
1               5                   10                  15

aca atc gcg tat tgt ctt cat ctc caa gac gac act ccg ttg ttt ttt      96
Thr Ile Ala Tyr Cys Leu His Leu Gln Asp Asp Thr Pro Leu Phe Phe
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465

```
gga gcc aaa ccg cta tcg gat gtg agt ttg att ata acg gaa ccg tgc     144
Gly Ala Lys Pro Leu Ser Asp Val Ser Leu Ile Ile Thr Glu Pro Cys
        35              40              45

gtg tca tcg gta tat gag gcg tgg gac tat gcg gca ccc ccg gta tca     192
Val Ser Ser Val Tyr Glu Ala Trp Asp Tyr Ala Ala Pro Pro Val Ser
    50              55              60

aac ctc agc gag gcg cta tcg gga atc gtg gtt aag aca aaa tgt cca     240
Asn Leu Ser Glu Ala Leu Ser Gly Ile Val Val Lys Thr Lys Cys Pro
65              70              75              80

gta ccg gaa gtt ata ctt tgg ttt aaa gac aaa caa atg gcg tac tgg     288
Val Pro Glu Val Ile Leu Trp Phe Lys Asp Lys Gln Met Ala Tyr Trp
                85              90              95

aca aat cca tac gtc acc tta aag ggg ctg gca caa tct gtt ggt gaa     336
Thr Asn Pro Tyr Val Thr Leu Lys Gly Leu Ala Gln Ser Val Gly Glu
            100             105             110

gaa cat aaa agc ggg gac ata cgc gat gct ttg ttg gat gcc ctt tcc     384
Glu His Lys Ser Gly Asp Ile Arg Asp Ala Leu Leu Asp Ala Leu Ser
        115             120             125

ggt gta tgg gta gac tct act cca tct tcc aca aat atc ccg gaa aat     432
Gly Val Trp Val Asp Ser Thr Pro Ser Ser Thr Asn Ile Pro Glu Asn
    130             135             140

gga tgt gtc tgg gga gcc gac cgt ttg ttc caa cgc gta tgc caa tga     480
Gly Cys Val Trp Gly Ala Asp Arg Leu Phe Gln Arg Val Cys Gln
145             150             155
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<210> 89
<211> 159
<212> PRT
<213> Varicella zoster

<400> 89

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Met Ala Ser His Lys Trp Leu Leu Gln Ile Val Phe Leu Lys Thr Ile
1               5               10              15


Thr Ile Ala Tyr Cys Leu His Leu Gln Asp Asp Thr Pro Leu Phe Phe
            20              25              30


Gly Ala Lys Pro Leu Ser Asp Val Ser Leu Ile Ile Thr Glu Pro Cys
        35              40              45


Val Ser Ser Val Tyr Glu Ala Trp Asp Tyr Ala Ala Pro Pro Val Ser
    50              55              60
```

466

Asn Leu Ser Glu Ala Leu Ser Gly Ile Val Val Lys Thr Lys Cys Pro
65   70   75   80

Val Pro Glu Val Ile Leu Trp Phe Lys Asp Lys Gln Met Ala Tyr Trp
                    85   90   95

Thr Asn Pro Tyr Val Thr Leu Lys Gly Leu Ala Gln Ser Val Gly Glu
                100   105   110

Glu His Lys Ser Gly Asp Ile Arg Asp Ala Leu Leu Asp Ala Leu Ser
            115   120   125

Gly Val Trp Val Asp Ser Thr Pro Ser Ser Thr Asn Ile Pro Glu Asn
        130   135   140

Gly Cys Val Trp Gly Ala Asp Arg Leu Phe Gln Arg Val Cys Gln
145   150   155

<210>   90
<211>   909
<212>   DNA
<213>   Varicella zoster

<220>
<221>   CDS
<222>   (1)..(909)

<400>   90
atg gct tct gta gca ggt aac gct agt aat atc tca cca cag ccc ccg   48
Met Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro
1   5   10   15

tcg ggc gtt cca acc gga ggg gaa ttt gta ctg ata cct acc gcg tat   96
Ser Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr
                20   25   30

tat tca cag ctg tta acc ggg cag act aaa aat ccg cag gta tca att   144
Tyr Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile
            35   40   45

gga gct cca aat aac gga cag tat atc gtc ggg cca tat gga tct cca   192
Gly Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro
        50   55   60

cac ccg cct gcc ttc cca cct aat aca ggg ggt tat ggt tgc cct ccg   240
His Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro
65   70   75   80

gga cac ttc ggg gga ccg tac ggg ttt ccg gga tat cca cca ccc aat   288

467

```
Gly His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn
                85                  90                  95

cgt ttg gaa atg caa atg tcc gca ttt atg aac gca ttg gcc gcc gaa        336
Arg Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu
            100                 105                 110

cgg ggt att gac ttg cag acc ccg tgt gta aat ttt cca gac aaa acc        384
Arg Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr
            115                 120                 125

gat gtc cgt cgt cca gga aaa cgg gat ttc aag agc atg gat caa agg        432
Asp Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg
        130                 135                 140

gaa ttg gat tct ttt tat agt ggg gag tct caa atg gac gga gag ttt        480
Glu Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe
145                 150                 155                 160

ccc tca aat ata tat ttt ccc ggt gaa cca acg tat ata acg cat cgg        528
Pro Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg
                165                 170                 175

aga cgt cga gtt tct cca tca tat tgg cag agg aga cac aga gtt tct        576
Arg Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser
            180                 185                 190

aat ggt cag cac gaa gag ctt gct ggg gtt gtg gca aaa ctg caa cag        624
Asn Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln
        195                 200                 205

gag gtt aca gag cta aaa tca caa aat ggg aca caa atg cct ttg tcg        672
Glu Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser
        210                 215                 220

cac cat aca aat ata cca gag ggg aca cgg gat cct cga ata tcg att        720
His His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile
225                 230                 235                 240

tta tta aaa cag ctt caa agc gtt tcg ggt cta tgc tca tcc caa aat        768
Leu Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn
                245                 250                 255

aca aca agc acc cca cat aca gat aca gtt gga caa gat gta aat gca        816
Thr Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala
                260                 265                 270

gtg gag gcg agt tcc aag gcc cct tta ata cag ggg tcc acg gca gac        864
Val Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp
            275                 280                 285

gac gcc gat atg ttt gca aat cag atg atg gtg ggg cgg tgt taa         909
Asp Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
            290                 295                 300


<210>  91
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468

<211> 302
<212> PRT
<213> Varicella zoster

<400> 91

Met Ala Ser Val Ala Gly Asn Ala Ser Asn Ile Ser Pro Gln Pro Pro
1   5   10   15

Ser Gly Val Pro Thr Gly Gly Glu Phe Val Leu Ile Pro Thr Ala Tyr
                20   25   30

Tyr Ser Gln Leu Leu Thr Gly Gln Thr Lys Asn Pro Gln Val Ser Ile
        35   40   45

Gly Ala Pro Asn Asn Gly Gln Tyr Ile Val Gly Pro Tyr Gly Ser Pro
    50   55   60

His Pro Pro Ala Phe Pro Pro Asn Thr Gly Gly Tyr Gly Cys Pro Pro
65   70   75   80

Gly His Phe Gly Gly Pro Tyr Gly Phe Pro Gly Tyr Pro Pro Pro Asn
                85   90   95

Arg Leu Glu Met Gln Met Ser Ala Phe Met Asn Ala Leu Ala Ala Glu
            100   105   110

Arg Gly Ile Asp Leu Gln Thr Pro Cys Val Asn Phe Pro Asp Lys Thr
        115   120   125

Asp Val Arg Arg Pro Gly Lys Arg Asp Phe Lys Ser Met Asp Gln Arg
    130   135   140

Glu Leu Asp Ser Phe Tyr Ser Gly Glu Ser Gln Met Asp Gly Glu Phe
145   150   155   160

Pro Ser Asn Ile Tyr Phe Pro Gly Glu Pro Thr Tyr Ile Thr His Arg
                165   170   175

Arg Arg Arg Val Ser Pro Ser Tyr Trp Gln Arg Arg His Arg Val Ser
            180   185   190

Asn Gly Gln His Glu Glu Leu Ala Gly Val Val Ala Lys Leu Gln Gln
        195   200   205

469

```
Glu Val Thr Glu Leu Lys Ser Gln Asn Gly Thr Gln Met Pro Leu Ser
    210                 215                 220

His His Thr Asn Ile Pro Glu Gly Thr Arg Asp Pro Arg Ile Ser Ile
225                 230                 235                 240

Leu Leu Lys Gln Leu Gln Ser Val Ser Gly Leu Cys Ser Ser Gln Asn
                245                 250                 255

Thr Thr Ser Thr Pro His Thr Asp Thr Val Gly Gln Asp Val Asn Ala
                260                 265                 270

Val Glu Ala Ser Ser Lys Ala Pro Leu Ile Gln Gly Ser Thr Ala Asp
        275                 280                 285

Asp Ala Asp Met Phe Ala Asn Gln Met Met Val Gly Arg Cys
    290                 295                 300
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